

THE AMERICAN FARMER:

DEVOTED TO
AGRICULTURE, HORTICULTURE AND RURAL ECONOMY.

[FIFTH SERIES.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." Virg.

Vol. I.

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No. 8.

FEBRUARY.

"These naked shoots

Batten as lances, among which the wind
Makes wintry music, sighing as it goes,
Shall put their graceful foliage on again
And more aspiring and with ample spread,
Shall boast new charms, and more than they have lost,
Then each in its peculiar honors clad
Shall publish even to the distant eye
Its family and tribe."

WORK ON THE FARM.

There is little to be added to our hints of last month in the way of work. Read over what we then said and give our several suggestions your attention.

THE YEAR'S WORK.

Arrange definitely your plan of operations for the coming season. It is a matter requiring a great deal of consideration and judgment, to determine what crops you may cultivate to most advantage, and to adapt the number of acres of each crop to the number of labourers. The young farmer should always take the advice of a judicious neighbour on these points. While it is desirable to lay out for a full crop, one that will keep everything astir through the working season, the young farmer is very apt to overstep the bounds of prudence, and over-crop himself. Let him be especially guarded against this temptation, and be content to do well what he undertakes, rather than boast of the number of acres he plants.

WORKING STOCK.

Be amply supplied with working stock. A full, strong team of horses or mules is of the utmost consequence to the success of your operations. Supply these at once, if wanting, and take care that they are all in good working order when spring opens. A good team of oxen will do a

great deal of useful labour on the farm, and might be very well substituted for horses in much of the heavier work, and prove more economical labourers. A great mistake is frequently made with mules and oxen in supposing that without proper care and proper feeding they may do their work. If they do not come up to such absurd expectations they are discarded as worthless. Treat them in all respects as a good horse should be treated, and have them handled gently and kindly, and they will do as much work, at much less cost of keeping, as the best horses.

FENCING AND FIRE-WOOD.

Cut fencing stuff and get it in readiness and in place for putting up when the spring opens.— Have good strong gates made wherever wanted. Cut full supply of fire-wood for next winter, and put it up in ranks.

FARM IMPLEMENTS.

Overhaul all these; repair thoroughly such as may need it, and replace those that are worn out and supply any additional ones that may be wanted. Have good tools and enough of them, and do not wait till you feel the want of them before purchasing.

TOBACCO.

Press on with the preparation of the Tobacco crop for market. Should the ground become dry enough, do not miss the chance of sowing Tobacco seed. Read our notes of last month on this subject. Get your hogsheads in readiness.

CLOVER FIELDS.

You will of course see that these are carefully protected against the tread of cattle and other stock.

MILCH COWS, EWES, SOWS, &c.

All these should have most careful attention now in anticipation of having their young. If true economy requires that other stock be well

taken care of at this inclement season, it demands it especially for these.

MANURES, LIME, &c.

Gather material for manures and give especial attention to the yards, that they be not flooded with water and the strength of the manure washed away. Lime may be spread upon grass land or upon such as has been ploughed for a spring crop whenever the ground is in order for hauling.

SEEDS, &c.

Get your supply of Clover and other seeds that you mean to sow in spring. On loamy soils many good managers prefer to sow small seeds early without any covering. If you design using brush or harrow and roller, however, wait till the ground is quite dry enough.

WORK IN THE GARDEN.

FEBRUARY.

But little can be done in the garden this month except by way of preparation. Should the ground come in good order for digging, this work may be done. When the labour is done mostly by hand, it is the more important that the ground be thoroughly spaded and manured. The garden should, therefore, if possible, be spaded two spits deep and the manure well incorporated with the soil. If compost has been prepared, as it always should be, that is the best manure for the garden. Long unfermented manures will do for some crops, such as potatoes, late cabbages, &c., but generally it is unsuitable for garden crops.

HOT BED.

Early this month make a hot bed for raising such early plants as you may want, as Cabbages, Tomatoes, Egg-Plants, Potatoes. Potatoes for early use may be planted whenever the ground may be in order.

PEAS.

Plant the early sorts of Peas.

LETTUCE.

Sow Lettuce seed on a warm border.

SPINAGE.

Sow the prickly-seeded Spinage the latter part of the month in a warm border.

CARROT.

Sow a few Carrots for early use.

CELERY.

Celery seed for an early crop may be sown on a warm border the latter part of the month.

RADISH.

Sow Radish seed the last of the month.

The following excellent method of saving and preparing compost for the garden, came to hand just as we had written the foregoing, from a lady in N. Carolina, who has our thanks for it. We commend it to general imitation. The ingenuity with which our correspondent modifies the *saving* part of the quotation from Macbeth, is very lady-like:

Best Garden Fertilizer.

"Patuxent Planter" promises humbug "fertilizers" a slap in your February number. If it is as well deserved as the good blow he dealt to "Plain and Pleasant Talk," &c., surely all will say:

"Lay on, Macduff,
And 'plague take him' who first cries hold, enough."

But to my subject. I have been a successful gardener for twelve years and find three requisites to ensure a productive and remunerative garden: a suitable fertilizer, thorough cultivation, and a practical knowledge of gardening. These three are indispensable. A good garden is a luxury, and unlike most luxuries, is not expensive, but is within the reach of every farmer's wife who has industry and energy. Even without the aid of a hot bed, every table may easily be supplied with fresh vegetables from January to December. My table is so supplied, and the fertilizer that helps my family to these good things does not cost my good man a cent.

Now for my plan: I have a heap made—using for this purpose any kind of "litter" most convenient, such as scrapings from the wood-pile, sweepings from the yard and garden walks, corn cobs and stalks, forest leaves, spent tan, &c.—This heap receives daily all the soapuds from the laundry, and slops from the chambers. Every Saturday my hen-houses, goose-pen and duck and turkey roosts are thoroughly cleansed,—these scrapings are evenly spread over the heap; all of the refuse salt and brine are also sprinkled over it. Every ten or fourteen days it is necessary to spread on a fresh coating of some of the above named absorbents. This plan is continued from spring to midsummer; and the quantity of rich compost thus accumulated, would astonish any one unaccustomed to saving such things. Every July my celery trenches receive a bountiful coating of this compost; in the autumn my asparagus bed calls for its annual dressing, and a little later, the vegetables put in the ground for early spring use (such as potatoes, peas, lettuce, mustard, spinach, kale, cress, parsley and onions) receive their stimulus and nutriment from the same generous heap. The coarser portions are raked aside and used as a mulch for my dwarf pears and other garden fruits. In July we commence a new heap, which by the spring is in condition for use. During the summer an occasional sprinkling of plaster (or copperas water) is used, mainly as a deodorizer. I have used various guanos and "fertilizers," and think very highly of some of them. But, as far as my experience goes, for fruits, vegetables and flowers, I prefer, decidedly, this compost to any other fertilizer.

HOMY COMFORTS.

The Italian Rye Grass.

The accounts we receive from England of the extraordinary productiveness of the Italian Rye Grass (*Lolium Italicum*), under the high culture to which it is submitted there, may have produced an impression not altogether favourable to the idea that it may be as well suited to any system of good farming here, as to that which in England exhibits its peculiar value. For the following account of it we are indebted to a prize essay, written by a student of the Prince Albert Agricultural School in Ireland. The length of the essay was too great for our columns, but we have abstracted the most material parts, and do not doubt it will prove useful to our readers who are interested in grass culture, and will induce some of them, we hope, to make a trial of its value.

History and Introduction.—This grass was brought, as its name indicates, from Southern Europe, where it is native, by the Seedsman of the Highland Agricultural Society of Scotland, in the year 1831.

Climate and Soil.—It has been proved by experience to be equally adapted to a cold and hot climate. Morton, in his *Cyclopedia of Agriculture*, says: "Its hardness or capability of withstanding extremes of temperature is obvious from its retention of verdant freshness through winter as well as in summer droughts, which destroy the ordinary gramineous vegetation—and its endurance of heat and drought has rendered its introduction one of the greatest benefits conferred on the Australian and other tropical and sub-tropical colonies." In England, even when sown in September, it not only retains its verdure through the severity of winter, but is ready for cutting at a very early period in the following spring.

The Italian Rye Grass succeeds well on any soil of medium fertility, from a light sandy to a stiff clay, but a rich loam suits it best. It is however chiefly prized for the extraordinary results it yields to high culture, and especially to the application of liquid manures. There are accounts almost past belief, of its yielding eighty to a hundred tons of grass to the acre, being cut eight or ten times during the season. We have not heard of the Italian Rye Grass having been successfully introduced into this country, but the peculiarities here mentioned, with the high character it has in England as a forage crop, makes it well worthy of careful trial on grass lots which may have the benefit of ample manuring, either for hay or for selling.

Preparation of Soil.—The same preparation of

soil is required as is known to be desirable and sufficient for clover and grass seeds in this country. The soil needs to be well cleansed by previous cultivation in a hoed crop, for one or two years, according to its condition when first broken up—always presuming, however, that at least one of the crops has been amply manured, or some fertilizer used upon the grain crop with which the clover is sown. Such a preparation, or indeed any which may be considered quite sufficient for a good stand of clover, will be proper for the Italian Rye Grass.

Time and Mode of Sowing.—The Italian Rye Grass may be sown in autumn or spring. If in autumn, some time in the month of September is the proper time, though a later period will do—and it should be sown alone, as the early and rapid growth it makes would interfere with any crop of grain. If sown in spring, it may be put in with a grain crop. If the grain crop has been sown in autumn, run a harrow over to break up the crust before sowing, and follow the sowing of the seed with the roller. The ground should neither be too wet nor very dry when these operations are performed. If a portable fertilizer is to be used, sow it immediately after the seed, before rolling. A light brush-harrow or a good brush may be used very properly before the roller. The great point to be aimed at in sowing small seeds, is to get sufficient covering without putting them too deep. The loss of grass-seeds in sowing is ordinarily very great, either from lying entirely uncovered or from being covered too much, or even more probably from a want of proper compression of the surface-soil about the seeds. So little covering is wanted that many judicious farmers are satisfied to throw the seeds on the surface in February or early spring and trust to such covering as the freezing and thawing will afford, in preference to the most approved method at a later period. When sown with a spring crop, the roller upon the grass seed will be sufficient on the fresh ploughed land.

Quantity of Seed to the Acre.—In England the quantity of seed to the acre varies; from $2\frac{1}{2}$ to 4 bushels are sown, according to the judgment of the farmer. About 3 bushels is probably enough. As with all other seeds, however, the quality of the soil makes a material difference. It weighs about fifteen pounds to the bushel.

Durability of the Italian Rye Grass.—It is a biennial plant, but like our red clover will sometimes last beyond the second year. It cannot, however, be depended on for a crop after that time. Red clover seed may very properly be sown with this grass, say half the usual quan-

tity, which not only fills up the interstices, but gives a closer soil and a heavier crop.

Rapid Growth.—Of all the known forage grasses, there is none, except perhaps, the Cocksfoot (our orchard grass) *Dactylis Glomerata*, which grows so rapidly. Mr. J. C. Morton, in a paper which he read before the London Farmers' Club, states an instance of Italian Rye Grass, of seventeen days' growth, having attained the extraordinary length of seventeen or eighteen inches and weighing 9 or 10 tons per acre; and when 5 weeks old was from 3 to 3½ feet high, and weighed 20 tons per acre. Instances are on record where the grass was found to be two inches a day, the ground being fertilized with liquid manure.

Manures.—As a general rule, in England, no fertilizer is applied until the young plants are from two to four inches above the ground. A top-dressing is then given of some of the following: Farm-yard manure; liquid manure; guano; nitrate of potash; nitrate of soda; sulphate of ammonia; vitriolised bones, or super-phosphate; gypsum, &c.

Liquid Manure.—While very little is known in this country of the use of liquid manure, and it is not likely to be brought into use here for many years, its extraordinary effects upon grasses generally and upon the Italian Rye Grass especially, make it a matter of interest to every one who cultivates the soil. The merits and beneficial effects of liquid manure, when directly derived from the drippings of the manure heap, the urine of the cattle, and the sewage of the farm-yard, can scarcely be over-estimated. It has been well said to supply the plants with both meat and drink in a cooked state. It is successful on all sides—it is good for all plants; and having a natural tendency to make soils more tenacious, its effects are perhaps more marked on light than upon heavy soils. To illustrate this, we have only to refer to the success which attends its application on the light soils of Belgium and Holland. It may now be considered to be pretty well established, that land manured by liquid, or liquified manure, retains its fertility in a remarkable manner; and that the effects, instead of being transient, have a far greater permanency than was at first anticipated. "Prof. Way," says Mr. Mechi, "has revealed the astounding truth, that irrigated grasses contain 25 per cent. more meat-making matter than those not irrigated." The Rev. A. Huxtable states that by the application of liquid manure to Italian Rye Grass, he has been able to keep at least four times as many cattle on the same quantity of land, the fertility of the land being at the same time increased.

Time of Cutting.—It may be cut for soiling any time it is twelve inches long until the seed is formed. Nevertheless the object for which the animal is kept ought to affect the time of cutting. "When," says Mr. Morton, "it is allowed to stand till on the point of putting forth its seed stem, it is then more substantial food, containing less water and more starch and sugary matter. When younger it contains, along with more water, more of the substances corresponding to the gluten of flour, which chemists tell us resembles the fleshy part of animal matter. Those who wish to make flesh, by their consumption of this grass, may therefore be right in cutting frequently and having it younger. Those who wish to make butter, are right in cutting it less frequently." It is an important point to know the proper time for cutting the grass when it is to be made into hay, so as to produce the largest quantity and the best quality. Like most other grasses the saccharine juices are in most abundance when the plant is in full flower, but before the seed is formed. This, therefore, is the best time for cutting it, for if allowed to stand uncut after this, it has a tendency to get hard and in course of the formation of the seed, the gluten, sugar and other matter soluble in water, give way to the deposition of woody fibre, which is insoluble in water, and incapable of being assimilated in the stomach.

Saving Seed.—When seed is to be saved, the Rye Grass should be sown entirely alone. It is allowed to stand about three weeks after flowering; being liable to shed its seed, it should not be allowed to stand too long. It will yield from 20 to 35 bushels per acre.

Produce.—The quantity of grass said to be obtained from an acre, under a system of fertilizing with liquid manure after each cutting, is almost incredible. It is cut from six to eight and ten times during the season, producing at each cutting several tons to the acre. It will repay amply for any quantity of manuring. Most commonly, however, the grass seed is sown with a grain crop, and perhaps receives no top-dressing afterwards; in such cases one cutting and an aftermath is all that is generally received. Now 8 tons are considered a good crop, and 6 not a bad one. A cow will consume on an average from 9 to 10 stones of grass per day, and at this calculation 8 tons or one acre of grass would supply a cow with green food for upwards of 20 weeks. This estimate is nearer the general return than the very large crops obtained under the system of liquid manuring.

Opinions with regard to the general merits of this grass.—The general opinion in its favor has in-

creased in a ratio with its diffusion and cultivation. The following statements indicate the general opinion of its value:

"The Italian Rye Grass is remarkable for the small quantity of useless matter, the large proportion of soluble carbonaceous substances, and the moderate proportion of albuminous constituents. This valuable grass has not obtained an undue reputation."—*Scottish Agriculturists' Almanac*.

"Those who have paid attention to the cultivation of Italian Rye Grass think highly of it. This grass grows more rapidly in spring than any other, and is so much relished by cattle that they scarcely allow a single stem to spring up." *Rham's Dictionary of the Farm*.

"It is an important fact, that however rank and luxuriant the Italian Rye Grass may grow, all animals eat it with the same avidity as they would the youngest shoots, and it never has the effect of scouring them, but, on the contrary, they thrive better upon it than upon any other description of grass whatever."—*Andrews' Modern Husbandry*.

"The Italian Rye Grass forms almost the only food of the dairy cows in the highly cultivated districts famed for the production of Parmesan cheese. * * All animals are particularly fond of it, whether as green food for soiling, as hay, or as pasturage."—*Dairy Farming*, p. 82.

Effect of Frost.

The effect of frosts of winter in disintegrating and preparing stiff, tenacious soils for gardening, has been admitted by all cultivators of experience. Ridge up your vacant ground before winter, that the greatest possible surface be exposed to the ameliorating action of the somewhat mysterious frosts. Soil in a good state of culture, loose and friable, it is not so necessary that you should operate upon. Partially trench up—that is, what old gardeners call "bastard trench"—all worn-out soils, for esculent root-growing next season. This method of trenching consists in opening a deep and wide trench—say two and a half to three feet in width, to a depth of two spades. The contents of the first trench must be removed to the further side of the lot; if the space is considerable, it had better be carted; if not, the wheel-barrow will serve to transport it, let it be deposited along the ground in heaps at regular intervals, so as to make up the last trench. Instead of throwing the active surface soil (partially exhausted, or wholly so perchance,) into the bottom of the trench, as many understand the operation, turn over the bottom with the spade, leaving the subsoil open, as in common spading; on this spread a portion of the surface soil, then a layer of good barn-yard manure, the coarser the better; then another layer of surface soil, taking care to mingle the soil and manure.—*Ex.*

[For the American Farmer.]

Industry the Road to Prosperity.

Scientific men for centuries past have been founding theories for the labouring classes, and have done much towards directing the blows of the hardy yeoman rightly. Agricultural writers who have catered for the farming community, have performed their duty well in dividing the good from the bad, and serving out to their clients the best of every thing that experience has taught, or scientific investigations suggested.—Dr. Baldwin's shade theory however strange it is deemed to be by the old stagers who still cling with true fidelity to ancient systems, is not without its merit in truth and practical utility. Abstract theory in itself, amounts to little to him whose living is to be brought up from the earth by hard blows, but a theory that is practical and beneficial in application, is what is needed by every working man upon earth. Surface manuring, which I conceive to be a part and parcel of shade theory, is comparatively new but established to be the best system of manuring by actual experiment, in every instance tried, and beyond doubt, and in that view the question is how shall we treat our poor land to that kind of shade.

My prescription is first gather up every idle boy in the land, and put him to work; brace up every dormant sinew and muscle, direct them to honest labour and rear good crops of the staff of life; then we can rear good stock, and turn the provender to the shading of poor land. This together with due diligence in gathering up muck, leaves, woods, mould and foul weeds that grow abundantly about every farm, will enable us to shade our land in a profitable way.

The great obstacle to improvement is idleness. Old men who have been trained from childhood's days to constant, wholesome toil, have lost the wise lessons of their sires, and hand down to their sons an acquiescence in the foolish notions that would scorn a rough hand and a sun-tanned face. They disregard the most wholesome precept ever given by God to man—overlook its eloquence and beauty, and fail to discover in its bearing upon the human family, that it is the great law which if transgressed, inclines us altogether to evil.—"In the sweat of thy brow, thou shalt eat bread."

Then let us obey this great law of labor—let us bring up the scores of idle consumers, who now disgrace themselves for the sake of being idle and foppish, and turn as a family of brothers to the solemn performance of duty, and let our blows be wisely directed to the getting of bread, and our poor lands will soon bloom in sprightly beauty and give us good returns of wholesome substantials, and our own hearts, minds and morals, be speedily renovated also, that we may live to enjoy as we ought in social confidence and regard, the blessings of life divested of every unholy contamination that wastes the pleasures of revilers and idlers.

The first important point in life is to learn what to do, the next that gives action and vitality to knowledge, is the doing—first learn well, and then do well, is an old adage that I hope no one will reject. Truly yours,

JOHN L. PATTERSON.

Hanover Co. Va., January 4, 1860.

[For the American Farmer.]

Humbugs of Agriculture.

BY PATUXENT PLANTER.

MR. EDITOR: The greatest of all humbugs are the many newly-discovered fertilizers. Lime, bones, animal manures and vegetable matters are beyond question the great fundamental elements by which soils may be renovated and kept in a high state of fertility. A sufficient supply of all, or of any one of these, are not accessible to a large majority of those who are dependant upon the cultivation of the earth, and whose duty it is to work and improve their possessions for their own sustenance as well as for those who are to follow. The earth is a high trust committed to them by our Creator, to be used for their own comfort and to be well cared for and improved for the future generations of man. To supply these means of keeping the soil in good fruitful condition, science has been called in to analyze these elements and to form other substances by various compounds, which will be equally efficacious and more easily attainable. Experiments have been made of earths and various substances found on the surface, secreted in the bosom or floating in the waters of the world. The manure of fish-eating birds in a peculiar climate, has been found to be wonderful in some soils and on some species of plants, in effecting their growth and grain bearing properties. Science has discovered other fertilizers of almost equal value, and perhaps better suited to all and every crop, and soil, and season, and to be had at a less cost. Now while science and liberal experiment have accomplished this, speculation and knavery have done more. Advantage has been taken of the demand created for these various articles (because their value was too plainly demonstrated to be disputed) to flood the country with spurious and worthless articles, as imitations of the *real*, at such prices as induced the unwary to purchase, rather than encourage the *speculation* that had increased the cost of the real and genuine articles to ruinous prices. The sordid Peruvian Government raised the price of Guano to famine prices, but the hundred hungry speculators in the article made it ten times more costly by selling a worthless compound at the same high figures. Now these are facts, and they are suggestive of a few views that I propose to submit for public consideration, and trust I may have succeeded in discovering a remedy for these monstrous evils that are inflicted upon us poor farmers by these horse-leech Shylocks.

1st. I think we are able, if we will *unite*, to reform this matter.

2d. We are entitled to legislation to protect us.

3d. Shall we not have such legislation? Is it not the imperative duty of our Legislature to aid Agriculture?

As to the first proposition, all we want is *union of sentiment and action*, and that will give us the strength to put down monopolies and break up all the impositions that are at present the curse of farming. Let the use of Guano be abandoned until it can be had at a price that will repay for its use. It has been used by numbers with no remunerating results. Let no manures or compounds be bought from any manufacturer unless he gives a statement of what it contains, and

then every farmer should select a sample of what he gets, after it is at his own home, and have it tested by some chemist of known integrity and skill, and then if it varies *materially* from what it professed to be, the purchaser should, over his signature, set forth the facts in some agricultural journal or other newspaper, and thus break that dealer; by which course, after one or more had been detected in their swindling, the rest would be afraid to try dishonest experiments, and the farmer would realize the worth of the money expended in these bought fertilizers. Without general concert of action in this or some other more efficient mode, we never can hope to get an honest article except under very peculiar circumstances. This union can be accomplished by an enlarged attendance of the farmers and planters, as members, at our Agricultural State Society's meeting, and solemnly agree to adopt and adhere to some such plan for mutual protection.

2d. From the earliest dawn of civilization, agriculture has been recognized as the rock on which every stable government rested, and ought as a duty of self-preservation, to be cherished and protected. It feeds all—indirectly clothes all, and should not be allowed to be cheated and oppressed by any person or combination of power. We ask for no protection by way of taxes on others, or tariff-duties of any sort, or a protection that could wrong any other of the great interests of the country, but for such wholesome laws as would punish *fraud* and give health and the vigor of trust and confidence to trade generally.

3d. It is universally admitted by all honest men that it is right to pass laws to punish the man who steals the cents off a dead man's eyes, and it surely is a worse crime to rob a *living*, trusting, honest farmer of a large sum of money, by selling him a worthless article, which is, after all his labour and money spent, and time lost, to disappoint his hopes and leave him without the means of providing for the necessities of his family, or cause him to turn cheat too, by buying the necessities of life without the means of paying for them, and thus making the original fraud affect all the ramifications of society. Our Legislature is in session, and *now* is the time for every farmer to write to or see in person the legislator with whom he feels he can have some influence as friend, partisan, or whose interest is identified with his own, and ask and demand some legislative action on this subject.

I know of no better law to be enacted than one that would incorporate in its provisions the views of Professor Johnson, and which you so appropriately noticed in your number of the *Farmer* for December. I would call the particular attention of every member of the Legislature to that article of yours and also to the work of Professor Johnson, "*Essays on Peat, Muck and Commercial Manures*." Let all read and reflect, and I am sure a law would be passed somewhat in accordance with those views, and which I humbly suggest should be in effect to abolish the office of Guano Inspector, and have an Inspector of all manufactured articles of fertilization; of whatever character or by whatsoever name the same might be known, and which were offered for sale for agricultural purposes, appointed. To *this*, "no one disposed to deal fairly could object." Every

honest dealer would be benefitted, and all others would have to leave the market. The Inspector should have a fair salary from the State, beside allowed \$5 for the analysis of every sample of these manures that a purchaser offered for his inspection, the said purchaser paying the \$5 or \$10 for the same. Thus a comparatively small salary from the State would compensate the Inspector, much less than the amount received by the Inspector of Guano, which has been unusually large, I understand, although it came in small amounts from the pockets of every buyer of Guano. Each manufacturer and seller of these various manures, or whatever they might be called, should be required to pay for a license, in accordance with the rates of large dealers in other articles of merchandize, whose license, I believe, is graduated by the amount of general stock on hand, which they verify by oath—and at the time of taking out such license, each dealer should leave with the clerk a statement of the various quantities of the most important constituents of his manufactured article. The purchaser could get a copy of this statement and compare it with the analysis of the Inspector of the specimen he had analyzed by him, and thus detect the fraud, if any. The proof of such fraud being established, the courts should be empowered and required to suppress the license of said dealer or manufacturer of such article, or of both, if both were shown to be guilty, or where the manufacturer and dealer or seller were one and the same person. The importance of this matter, its baleful effects on the prosperity of the agriculture of the State, its magnitude in outlay annually by the farmers—more money being spent in the purchase of *spurious* manures, or almost worthless articles, than is required to pay the entire cost of the legislative and executive administration of the State government—all demand energetic attention in the shape of remedial, stringent laws, and the intelligence and patriotism of the present rulers will be manifested, I am confident, by their prompt action upon this subject.

January 10th, 1860.

[For the American Farmer.]

The Peach Blow Potato.

FRIEND WORTHINGTON: I can unite with our friend Twining, in the December number, in regard to the desirableness of the Peach Blow Potato. I tried this year ten different varieties, and I may freely say (all things considered) that kind is the *best* of the ten. They are a good and handsome shape, not inclined to be knobby or branched, equal to the white mercer for the table, and their yield *double*. The severe storm that swept over us in September, so injured several of my kinds of potatoes, on the adjoining ground, that they commenced to fail from that time, but the Peach Blows were not affected by it, but continued to grow on with undiminished vigour. Though my experience with this kind does not extend beyond this year, and the planting of 25 bushels, I have seen, as yet, no tendency to rot, nor am I disappointed in their good qualities.

Truly yours,
Falmouth, Va.

A. VAN DOREN.

In our opinion the *quality* of the Peach Blow is much overrated.—Ed.

Shade Theory.

WINCHESTER, January 4, 1860.

To the Editor of the American Farmer:

DEAR SIR: In the January number of the *American Farmer* I noticed the following editorial remarks:

"Dr. Baldwin's 'shade theory,' as it is termed, we have expressed our opinion upon heretofore. We agree with him mainly as to the facts; we are quite aware of the value of covering the soil as a method of improvement, but we do not see that his theory explains the facts at all."

I was much gratified to observe that you agree with me mainly as to the facts, and although I will readily admit that very erroneous deductions may be drawn from well ascertained facts, yet I must insist upon it, until better instructed, that the facts fully justify and sustain the following propositions:

Proposition 1. Of the various changes which vegetable and mineral substances undergo during their decomposition, the product of the one only which has proved to be the aliment of plants is the residue of putrefaction.

2. Each change is a distinct and peculiar chemical process, differing not only in the circumstances requisite to produce it, but also in the nature and chemical composition of each product.

3. The value of each product depends very materially upon the attention paid to the circumstances necessary to generate each peculiar process. This is known to be true with regard to the vinous and acetous fermentations, and is equally true with regard to every other.

4. That a close, cool, dark and damp location with a contact of air, is indispensable to the generation of the putrefactive process. All organic substances experience this change only, when thus located.

5. No substance whatsoever will undergo the putrefactive process when exposed to heat, light, and a free circulation of air.

6. That decay, or *eremacausis*, is a distinct chemical process, differing essentially from the putrefactive, in the circumstances which produce it, as well as in the quantity and quality of the product, which is invariably destitute of fertilizing virtues.

7. Putrefaction may be considered the ultimate result of vegetable and animal decompositions, because it forms the only product incapable of any other chemical change and is consequently indestructible.

8. That the excrement of animals is not manure; like the bodies of animals, it never becomes the food of plants until subject to putrefaction.

9. That the value of manure materially depends upon the perfection of the putrefactive process; that is, the strength or fertilizing qualities of the manure may always be estimated by the density and duration of the shade to which it has been subject.

10. That the surface of the earth itself will readily undergo the putrefactive process, if favorably located, that is if densely shaded, which of necessity implies a cool, dark, close and damp location.

11. That the fertility imparted to the earth by shade—that is, manure made of the earth itself,

is more durable and therefore more valuable than that made of any other substance whatsoever.

12. It is not true that the impoverished condition of any soil proceeds from a deficiency in one or more of its mineral constituents, because all soils alike may be made exceedingly fertile by *shade alone*.

Now, sir, if you believe that these are erroneous inductions from the facts, or if you dissent from the opinion expressed by J. H. Skinner, late editor of the "Plough, Loom and Anvil," that "if they be finally established, the discovery will constitute a very striking epoch in agricultural annals," I most respectfully request that you will assign your reasons freely and unservedly. Yours, respectfully,

R. T. BALDWIN.

Agriculture in English Literature.

LAVERGNE, the distinguished French rural-economist, in commenting on the English taste for a country life, has the following:

The national literature, as expressive of manners and customs, contains throughout, marks of this distinctive trait in the English character. England is the country of descriptive poetry; almost all their poets have lived in the country, and sung of it. Even when English poetry took ours for its model, Pope celebrated Windsor Forest, and wrote pastorals; if his style was not rural, his subjects were. Before him Spenser and Shakespeare wrote admirable rustic poetry; the song of the lark and nightingale still resounds, after the lapse of centuries, in Juliet's impassioned farewell to Romeo. Milton—the sectarian Milton—employed his finest verse in a description of the first garden, and in the midst of revolution and business, his fancy carried him towards the ideal fields of *Paradise Lost*.

But it was principally after the Revolution of 1688, when England, now free, began to be herself, that all her writers became deeply impressed with the love of country life. It was then that Gray and Thomson appeared; the first in his celebrated *Elegies*, and among others his "Country Churchyard," the other in his poem of the *Seasons*, striking in delightful sounds this favorite cord of the British lyre. The *Seasons* abound with admirable descriptions; it is sufficient to instance the hay-making harvest and sheep-shearing, the latter being already in Thomson's time, a great business in England; and among the pleasures of the country, his account of trout-fishing. The angler, at the present day, may find in this little descriptive picture, his favorite art fully detailed. The feeling is everywhere lively and spontaneous—enthusiasm, real and deep, for the beauties of nature and the sweets of labor. To these Thomson joins that quiet high religious feeling which almost always accompanies a solitary and laborious life, in the presence of the never-ending wonders of the vegetable creation. It pervades the whole poem, especially in the concluding part, where he likens the awakening of the human soul after death to nature after winter.

The entire Census of Great Britain was taken in 1851, in a single day.

Osage Orange—Disease of.

To the Editor of the American Farmer:

DEAR SIR: In laying the Osage Orange last spring, I discovered a place in the hedge about one panel of fence in length, turning black nearly the whole length of the stock. Here and there on the stock there were white spots larger than a grain of wheat—the white spots to all appearance as if some one had stuck small spots of cotton on the stock of the plants. After they were laid, the diseased plants leafed out at the top, but put up no suckers. Some time in June I was passing along by the diseased spot, when my attention was directed, as I thought, to the buzzing of many bees, but upon examination I discovered the diseased part of the hedge to be swarming with flies. I supposed, at the time, they were feeding on the white spots on the thorn. Every time through the summer that I examined this spot it was swarming with flies, but were to be found nowhere else in the hedge. Those flies I think are the cause of the disease. Last November I dug up the diseased hedge; upon examining the white spots I discovered the shell of an insect enveloped in them. The disease continued to spread all summer; by fall it had spread to the length of eight panels of fence. The Osage are very tenacious of life; although black as ink from the surface of the ground to the top of the stock, yet there is some life left. I was in hopes that we had found in the Osage Orange a substitute for rail fences, or at least for outside fences. If they are to be destroyed by insects, let us find it out as soon as possible. If any of my brother farmers can throw any light on the subject, through your valuable journal, I for one will be very much obliged.

Yours, respectfully,

WM. J. GRIFFITH.

Head of Sassafra, Kent Co., Md., Jan. 12, 1860.

We should be glad to know whether this disease is affecting hedges elsewhere.—Ed.

Raise Fine Fruit.

A cotemporary very truly says: "Fruits are an important part of the living of a family. We wish every farmer would lay his plans in season and take time by the foretop, for improving in this branch of industry. If he lives near a market, it is the most profitable; and wherever he may be, there is a refining influence in fruit culture, which should not be overlooked. There is solid comfort in it. There is an innocent luxury. When the children are far away, and have built them other homes, they will remember the old homestead, but no place in it, except the place by the fire-side, where a loving mother used to sit and mend their clothes and darn their stockings, and bear patiently with their childish pranks, and teach the young idea, will be remembered with more longings to return, than where their childhood's lips smacked the fruit of a favorite tree. Apples, early and late, for summer, autumn, winter, and spring; pears, grapes, peaches, quinces, plums, cherries, apricots, gooseberries, currants, and strawberries, should be the delight of every farm, unless peculiarity of climate would exclude some of these, and many others should be introduced if soil and climate favor."

Lime as a Fertilizer.

We are indebted to A. B. Davis, Esq., for the following from the *Utica Morning Herald*, which Mr. D. says agrees so well with his own experience, that he wishes to see it take a permanent form in the pages of the *Farmer*:

In the use of lime as a fertilizer, the following considerations should be weighed:

1. The quality of the lime.
2. The physical qualities of the soil; its density or porosity, and its degree of moisture.
3. The proportion of organic matter it contains.
4. The inorganic constituents.
5. The condition in which the lime is applied.
6. The other manures to be added.

These are not problems which can be solved only by the analytical chemist. A careful and observing farmer, who is acquainted with the characters and composition of the more important minerals which are contained in his fields, can generally solve them with sufficient accuracy. If, however, something noxious to vegetation is present, as sulphate of iron, or too much magnesia, an analysis of the soil and subsoil should be made.

Firstly, In regard to the quality of the lime. If it contains a large proportion of magnesia, it should not, if pure lime can be obtained, be applied to soils containing much tale or magnesian mica, because these silicious minerals contain a large proportion of magnesia. Magnesian lime, when applied to such soils, tends to increase their already hard and impervious condition.

Carbonate of lime, when perfectly pure, contains one equivalent or 43.86 per cent. of carbonic acid, and one equivalent or 56.14 per cent. oxide of calcium, or caustic lime. Limestone, however, is never perfectly pure, but always contains portions of other earthy matter, as silica, alumina, oxide of iron, phosphate of lime, potash and soda, together with traces of organic matter. Besides these impurities, it generally contains from one to fifty per cent. of carbonate of magnesia. Carbonate of magnesia consists of one equivalent or 51.55 per cent. of carbonic acid, united with one equivalent or 48.45 per cent. of oxide of magnesium or magnesia. It will be perceived, from these figures, that it contains carbonic acid in greater proportion than carbonate of lime does.

When limestone is burned, the carbonic acid is expelled, and the lime is reduced to an oxide, or quicklime. When nearly pure, 2000 lbs. of limestone will yield about 1120 lbs. of quicklime. If it contains much carbonate of magnesia, the quantity of burned lime will be less. In slaking, lime chemically unites with water and forms what is called a hydrate of lime, or slaked lime. When magnesia is present, hydrate of magnesia is formed. In both cases the bulk is greatly increased. Hydrate of lime consists of 75.8 per cent. of lime and 24.2 per cent. of water, or one equivalent of each. Hydrate of magnesia consists of 69.7 per cent. of magnesia and 30.3 per cent. of water, or one equivalent of each. It may therefore be estimated that quicklime, in slaking, combines with about one-third its own weight of water. By exposure to the air, hydrate of lime

gradually absorbs carbonic acid and parts with the water, until about half of it is converted into carbonate of lime. In this condition it remains for an indefinite time, the absorption of carbonic acid going on much more slowly. On the other hand, hydrate of magnesia may be exposed to the air for a long period without combining with carbonic acid. The knowledge of this fact enables us to explain the varying action of lime we sometimes witness, which would otherwise be inexplicable.

If one of the objects in applying lime is to have it act upon the mineral constituents of the soil, so as to set free a portion of the potash they may contain, pure and recently slaked lime is the best; indeed, as a rule, magnesian lime is always inferior to pure lime. It should be preferred only on land which is destitute of magnesia, and should then be applied in small quantities, unless the percentage of magnesia is small.

Secondly, The physical qualities of the soil. It is well known that heavy close soils, are generally more benefitted by the application of lime than such as are light and porous, and that it may be more safely applied in large quantities to the former than to the latter. Heavy soils are made more porous by its use, and will retain it much longer. Lime has a tendency to sink into and below the soil, and such sinking takes place more readily in light than in heavy soil, because it offers less mechanical impediment to its descent. Close, clay ground adheres to and envelopes the particles of lime, and thus prevents them from sinking. Lime should be applied to light soils in small quantities and at frequent intervals, and care should always be taken to have it placed upon or near the surface. Some agricultural writers state that lime has the effect to make dry soils still dryer, but this effect I have never witnessed; on the contrary, when the application was properly made I have thought they were always made more retentive of moisture.

Thirdly, The proportion of organic matter in the soil. This should be one of the chief indications to the farmer as to the quantity of lime to be applied. Soils which contain much organic matter will bear much larger doses of lime than those which are deficient in such material. It hastens its decomposition and conversion into carbonic acid, which is one of the principal forms of plant food, and which is absorbed by the roots as well as by the leaves. It is also to the presence of carbonic acid that much of the mineral food of plants owes its solubility.

Fourthly, The mineral composition of the soil. This should be carefully considered; and in some cases, particularly where some noxious substance is known or suspected, determined by analysis. The observing farmer who possesses some knowledge of the more important minerals, such as limestone, felspar, mica, hornblend, gneiss and clay, assisted as he is by a knowledge of the degree of fertility of his fields, of the manures that have or have not been applied, and of the rotation that has been pursued, can generally form a pretty correct conclusion as to the amount of lime which should be applied. It is often proper to apply lime in greater quantity than is required to merely supply this mineral portion of the crop, or to promote the decomposition of organic matter. Potash is one of the most important ele-

ments of fertile soils; and nearly always exists in combination with silica, as felspar. Caustic lime possesses the power of combining with the silica so as to free the potash, or leave it in combination with only a small portion, (soluble glass, soluble silica.) This method of furnishing potash is often more economical than to add the alkali directly; moreover, it is not always possible to obtain a sufficient supply of ashes. In some localities the soil is formed from the disintegration of rocks which are rich in felspar and mica. Such soils are often naturally unproductive, but by a good system of cultivation frequently become exceedingly fertile, and are well adapted to the growth of roots, crops and fruit.

(To be continued.)

Advantages of Pulverizing the Soil.

The effects of pulverization or stirring the soil are numerous:

1. It gives free scope to the roots of vegetables, and they become more fibrous in a loose than in a hard soil, by which the mouths or pores become more numerous, and such food as is in the soil has a better chance of being sought after and taken up by them.

2. It admits the atmospheric air to the spongy-ness of the roots—without which no plant can make a healthy growth.

3. It increases the capillary attraction or sponge-like property of soils, by which their humidity is rendered more uniform; and in a hot season it increases the deposit of dew, and admits it to the roots.

4. It increases the temperature of the soil in the spring, by admitting the warm air and tepid rain.

5. It increases the supply of organic food.—The atmosphere contains carbonic acid, ammonia, and nitric acid—all most powerful fertilizers and solvents. A loose soil attracts and condenses them. Rain and dew, also, contain them. And when these fertilizing gases are carried into the soil by rain water, they are absorbed and retained by the soil, for the use of plants. On the other hand, if the soil is hard, the water runs off the surface, and instead of leaving these gasses in the soil, carries off some of the best portions of the soil with it. Thus, what might be a benefit becomes an injury.

6. By means of pulverization, a portion of the atmospheric air is buried in the soil, and it is supposed that ammonia and nitric acid are formed by the mutual decomposition of this air and the moisture of the soil—heat also being evolved by the changes.

7. Pulverization of the surface of soils serve to retain the moisture in the subsoil, and to prevent it from being penetrated by heat from a warmer, as well as from radiating its heat to a colder atmosphere than itself. These effects are produced by the porosity of the pulverized stratum, which acts as a mulch, especially on heavy soils.

8. Pulverization, also, as the combined effect of several of the preceding causes, accelerates the decomposition of the organic matter in the soil, and the disintegration of the mineral matter; and thus prepares the inert matter of the soil for assimilation by the plants.—*Genesee Farmer.*

Grape Culture.

This is a subject that we have at all times delighted to present to the consideration of our readers. In town or in country it is a practicable pursuit. Wherever there is a sunny aspect, and a foot square of ground not covered by a building, a fence, a payment, or other tangible object, there the grape vine may be planted and the grape cultivated. Of course large vineyards can exist only in the country, but in every small garden in city or village, where the sun is permitted to shine, and the circulation of the air is unobstructed, grapes enough may be grown for the use of the family, with some to give to a neighbor, if not to sell in the public market. Let every farmer or other resident in the country, who has not grapes, and every owner or tenant of a house in town, whose family is not at present supplied with this delicious and wholesome article of food, take a new start from this hint, and stick in a few Catawba and Isabella roots forthwith. The cost will be the merest trifle now, while pleasant and beautiful foliage will be supplied from the first year, and after the third year, a rarely-failing basket of fruit will be furnished for every seasonable day's desert.

The past two or three years have been so unfavorable for the product of the vine in nearly all parts of the Ohio valley, that many vine-dressers have become disheartened, and some even threaten to plow up their vineyards, and return to the growing of potatoes and cabbages. But have not potatoes and cabbages failed within the same time? According to our recollection, they have, most decidedly, in many localities; and corn, oats, and wheat, apples, peaches, and pears, have failed with them. Think over what a wide extent of country oats failed the past season. Year before last, remember how much of the corn failed to mature in Northern and Central Kentucky, in Southern Ohio and Indiana, and in many sections of the West beside. Call to mind how, for several years past, the farmers of Illinois have suffered from the winter-killing of their wheat, the ravages of the chinch bug, and other causes. Think, also, how much money and hard labor have been lost by feeders and drovers, in consequence of the extensive and long continued prevalence of "hog cholera."

Before any one, engaged in any branch of productive industry, suffers himself to become discouraged, he should look beyond his own walls, or his own fence. His neighbors, engaged in other branches, may be faring as badly as he is himself. And if they are not doing so this year, they may have done so last year; and very likely, if they were fortunate this year and last year both, they will have their time of trial next year, while *your* luck will then be culminating in a good harvest. We must look at and think of all these things. We must take the seasons as we find them—looking for the best, preparing for the worst. He who does not act in this spirit, lacks the chief element of success and happiness in life.

A great deal has been said and written the past year about the failure of the grape, and some who disclaim being either prophets themselves or the sons of prophets, have yet predicted that the manufacture of wines in the Ohio valley and in other parts of the Western and South-western country, will soon show itself to be a magnificent

failure. So does not think Nicholas Longworth, who has more invested in this interest than any other man. And Robert Buchanan, who is one of the most persevering and systematic cultivators of the grape and manufacturers of wine in the Ohio valley, and who is as accurate in posting up the memorandums of his vineyard as the accounts of his mercantile business, is by no means discouraged, although he would not just at present counsel large outlays, especially by that class of persons who depend upon manual labor and its quick returns, in planting and cultivating vineyards.

Last year, although many of the vineyards about Cincinnati failed partially or almost wholly, some, both in Hamilton and several neighboring counties, made a fair yield of grapes, the wine manufactured from which was superior to that of average years, and will command a better price. And at Hermann, Mo., where there was so extraordinary a crop the year before, there was a fair crop in '58, though the vintners were hardly entitled to it.

We suggest, (and we are among the sufferers in grape culture, as well as in peach and pear culture,) that the time to be disheartened and give up has not yet come.—*Louisville Journal*.

Artificial Breeding of Fish.

We have been favored with a copy of a letter from Gov. Wright of Indiana, now U. S. Minister at Berlin, to D. Howland, Esq., of Indianapolis. It discusses several questions of interest to farmers and horticulturists, but we confine our extracts at present, to what he says upon the artificial production of fish:

Fish have been artificially increased and preserved in China for centuries. A little more than a hundred years ago, the subject began to attract the attention of scientific men in Germany, where the practice has already reached a high state of culture. In England and France attention has been but recently directed to this branch of industry, yet it is successfully cultivated in both countries, and promises to become of the utmost importance to the world. I will not attempt a description of the different methods pursued in France and Germany, as you will find one, better written, and with details which I cannot go into, in more than one of our scientific journals. I should like to have some of our Western men, who happen to be the owners of small lakes or ponds, make the experiment for themselves. The field for scientific investigation is large and important, and the results, if successful, cannot fail to be highly beneficial. If all our ponds, lakes, brooks and rivers were stocked with the better kinds of fish, their increase secured by artificial means, and protected against extirpation by wise legislative provisions, we should have a cheaper and healthy article of food constantly at hand.—It is only a short time since salmon was a luxury in Hanover, Germany, only to be enjoyed by the wealthy; now it is within the means of the peasant as well as of the noble. On the 22d of last February I had a salmon from Hanover, on my table, which weighed thirty-two pounds.

I send you the enclosed paragraph from an English paper, as it not only serves to illustrate the practicability of the artificial propagation of

fish, but conveys a hint toward the stocking of our great inland seas, which should not be lost upon our countrymen:

"At a recent sitting of the *Societe d'Acclimation*, Dr. Cloquet, read an interesting paper on a successful experiment recently made by M. Coste, in a pond situated at St. Cucufa, one of the domains of the Emperor, near St. Cloud. It had hitherto been considered impossible to produce salmon in a state of domesticity, without their emigrating to the sea; M. Coste's experiment proves the contrary. The small pond above alluded to, situated in a shady valley, does not cover a surface of more than two and a half acres. Its greatest depth is six metres, from which the bottom rises in a gentle slope to the grassy bank. It receives its waters by transudation from the high ground with which it is surrounded. Three years ago it was emptied for repairs, and when it afterwards again received its usual quantity of water, M. Coste stocked it with some trout which are now four years old, and about a foot and a half in length. In April and May, 1857, he added several thousand lilipution salmon, bred at the College de France two months before, and notwithstanding the havoc committed by their voracious enemies, the trout, they have thriven so well that some time ago, in the presence of their Majesties, upwards of two hundred kilogrammes weight of these fish were brought up in a single draught of net. They were on an average about a foot in length. But the most important circumstance which M. Coste remarked on this occasion, and which adds a new fact to science, was that all these fish were in a state of reproduction; the spawn which they contained had come to maturity, and it has been subjected to artificial fecundation; the embryos resulting therefrom are so far developed that they must soon be hatched. Hence it is proved that salmon may be propagated in close waters; and also, that salmon, like trout, begin to spawn at the age of eighteen months."—*Country Gentleman*.

How to Pack Eggs.

The following directions are given, by one who has had a good deal of egg packing to do, as the best method: "Always use clean oats. First put them one inch deep in the bottom of the barrel; then a pretty firm sheet of paper; then a half inch of oats again, well pressed; then eggs, end up, followed by oats and eggs as before, but working each layer of oats with the hand snugly down around the eggs next the barrel, as well as rubbing them effectually in between each of the eggs in the layer. I use a board some six or eight inches square, with a loop or staple in the centre, for pressing each layer of oats firmly down. There will be something gained by lifting and dropping the barrel square on the end, but not by shaking, as it disturbs the layers. When it gets too heavy to lift, use a board three-fourths as large as the head, and get on it, increasing your weight with a spring. End as you began, with paper and oats, getting on the head and driving it in. The secret lies all in packing the oats. Oats are better worth sending to market than hay, and just as safe. I have sent ten barrels at a time without losing a single egg. You must pack tight. Remember that."—*Royal New Yorker*.

Form and Action of Saddle Horses.

When a horseman sits on a good roadster, he need not take the trouble to pick his way when riding down a rough country lane or over broken ground, because the fore feet of a clever saddle horse, be the pace, walk, trot or canter, are always well forward, and fall flatly and evenly on the ground; and when in action the fore legs are sufficient; but not too much bent, the action coming direct from the shoulders. But the most agreeable feature experienced in riding perfect saddle horses is, the ease and elasticity with which they move in all their paces, thereby sparing the rider any feeling of fatigue. Not only is the number of hacks and hunters very limited, but those we have—except a few in the hands of masters of hounds and members of hunts—are too apt at an early age to display some of the infirmities to which their race are now subject, in the shape of curbs, splints, and spavins, consequent upon the hurry the breeders are in to bring them into the market before they arrive at a proper working age. Thousands of capital saddle horses are annually sacrificed from this very cause. I partly attribute the downward tendency of our breed of saddle horses, to the rage for speed, which is now so prominent a feature on the English turf; but when we take into consideration what long considered and careful selection on our turf has effected, when the sole object was speed, we may reasonably anticipate as important and beneficial results from equally judicious selection, when our object is to produce horses possessing that fine union of qualities so essential to good saddle horses.

There are few people who know what constitutes good shoulders in a horse—a good many asserting that they should be *fine*, meaning by this, lean at the withers. It is however, certain that the shoulders of a young horse intended to carry weight can hardly be too thick at that place, provided they are not too thick at the points or the lower ends, while inclining their tops well back and leaving a good space between the end of the mane and the pommel of the saddle.—There is a certain cross-bone which connects the lower end of the shoulder blades with the horse's fore-legs which very materially affects his action. When this is too long it throws the fore-legs too much back, causing the horse to stand over like a cart horse; and such an animal, besides being unpleasant to ride, when at all tired, is very likely to come down. I am here stating what is well known to good judges, but I write for the many. I would also observe that the form of shoulders I have recommended only *contribute* to good action, they alone do not *secure* it. Good hind-leg action is as important as good action in the fore-legs. The hock joints should bend well, when in action, bringing the hind feet well forward, but without striking the fore feet, commonly called over-reaching.

It is a common practice to pay little attention to the action of the hind legs, so long as the horse possesses what is termed "fine knee up action;" but all superior horses, of whatever breed, are eminently characterized by good hind-leg action; for be the shoulders ever so good, unless the action of the hind-legs is also good, the horse is uneasy to ride, because the action of the two sets of legs are not properly balanced, and, no matter

how accomplished the rider may be, it is with difficulty he can accommodate his seat to the action of such a horse. Such a horse is unsafe to ride, and his rider, if a judge of action, feels that he is so; but if the action of the hind and fore legs be properly balanced, the rider feels his horse firm under him, and that he cannot very well come down. Indeed, in this case he seems to be riding *up hill*, while under opposite circumstances he seems to be riding *down hill*. One important point which I consider has been gained by the breeding of horses for speed is, the great length between the hip-bone and the hock, as exhibited in the greyhound; and although the possession of this point is not so absolutely necessary, yet I, for one, should be inclined to give its possessor the preference for a hunter of the present day, for the horse either is, or ought to be, capable of great speed. But our hunter had not formerly this shape, and did not so much require it. There is, however, one objection against an *excessive* length between hip and hock, which is, that it frequently causes over-reach, a most disagreeable infirmity for either hunter or roadster. A horse's hips should be wide, to carry weight, and his loins highly muscular, but the lower ends of his shoulders should be light. His chest cannot be too full, but it may be too wide for speed, as well as for agreeable action, causing a rolling motion, very unpleasant to the rider.

Great depth of chest is a powerful recommendation, and the ribs before the girths cannot be too long, but the back ribs (when much speed is required) should be rather short. For very fine action, the shoulder-blades must be long, while they cannot be so without inclining well back. If a horse so formed has good hind-leg action, he will be very valuable as an active weight-carrying cob, because this form of shoulders is, I regret to say, now rarely to be found among our saddle horses, as in the majority of them that come within the pale of a moderate price, the girths are continually slipping forward, causing the rider to sit on the horse's withers rather than on his back: and this is one cause of horses falling down, as the weight of the rider pressing on the top of their shoulders seriously interferes with their free action, and when they make a slight tumble it is next to impossible to recover their feet. The best height for horses intended as hacks of the first class, is about 15 hands. Tall horses are not so good for hacks as those of lower stature, as they do not move with so much ease and lightness, wearing their legs more, and causing more fatigue to their riders. The majority of tall horses are now-a-days tall only because they have long legs, which are very objectionable, as they never wear well, and are mostly allied with a very shallow body. These horses may do well enough when a showy appearance is the only object in view; but they are not calculated for hard work, or to ride in hilly country. I may dismiss this subject by remarking that I would not advise the purchaser to reject a horse just because he does not happen to possess all the good qualities I have here recommended, as they will remember the old adage, "That there never was a perfect horse."—*London Review*.

Every day of the week is observed as a Sabbath by some of the nations of the globe.

Rotation and Deep Soil—A Corn Experiment.

Regular rotation of crops and deep plowing are working wonders upon some of the old and long-worn farms of New England. In the discussions before the Maine State Board of Agriculture, which met at the seat of Government in January, many of the delegates bore striking and uniform testimony to the value of both these practices, especially upon lands that had been cropped hard. One of the members mentioned a field of fifteen acres, "badly bound out," which was plowed three inches deeper than ever before, and after an application of three bushels of Plaster of Paris, produced a yield of 600 bushels of oats. This is forty bushels to the acre. Another reported a yield of 82 bushels shelled corn per acre—56 lbs., to the bushel, from a field similarly treated.

Results very like these could be obtained from many of the old fields in Kentucky, which now grow nothing but sedge and briars, if deeply plowed, and the application of plaster were substituted by a generous quantity of barn-yard manure, or a compost of which the base should be stable dung and scrapings from the woods.

We have our mind's eye now upon an old field twelve miles from Louisville, which was treated in this manner three years ago, and gave a yield of corn in return that much more than paid expenses. Without further preparation it was seeded to grass, sown upon the corn stubble, and will this coming season be more than fair pasture or meadow, for one or the other of which it is designed. The corn, in this experiment, was manured in the hill.

Our farmers complain of the great labor and heavy cost of such experiments. But such complaints are without reason. Every farmer who keeps merely two or three horses, four or five cattle, a half dozen sheep, and a dozen hogs, if he will only litter his stalls, pens, and barn-yard, with the cheap litter afforded by the woods a short distance from his dwelling house, in quantities enough to furnish his animals with comfortable bedding, he can have every year, by planting time in the spring, a mountain of compost such as we have described that will perfectly astonish his own eyes.

So much for the cost of that part of the experiment. It really costs nothing, for it will pay for itself in the increased comfort supplied to his stock, and the diminished quantity of food necessary to carry them through the winter. As for the labor and expense of hauling out, that is not very formidable, when you post up and look the thing right in the face.

In the instance to which we have referred, after the field was checked off for the seed, a two-horse wagon and three men manured four acres per day—giving to each hill a large shovelful of the compost. The actual expense in this case was probably two dollars per day, but in any case would not be over four dollars, or one dollar per acre. Without the manure, the old field might possibly have yielded 25 bushels to the acre; with it, it yielded about 40 bushels.—Difference—15 bushels, which, at only 33¢ cents per bushel, is \$5.

All this is clear gain, for the cost of hauling out and applying the manure is fully repaid by

the condition in which the crop left the ground for grass.

After this field has lain in grass two or three years, it will probably be turned over for another trial, and we will then speak of it again.—*Louisville Journal.*

Reduction of Bones to Powder.

We take from the *Homestead* the following report by Professor S. W. Johnson, of Yale Analytical Laboratory, on the best process for reducing bones to powder, without the use of a mill or of oil of vitriol. We think it will prove both useful and suggestive to many of our farmers who allow all the refuse bones of the household to go to waste.

Having lately been asked by several agriculturists if there is any method known of bringing whole bones into a pulverized condition, otherwise than by grinding or treatment with oil of vitriol, I take the opportunity to communicate to the members of the State Society the process of reducing them into a convenient form by fermentation.

This process has been practiced in England for ten years or more, having been brought before the public there by Mr. Pusey, for many years the editor of the *Journal of the Royal Agricultural Society*, of England; but it appears not to have become very widely known in this country.

The process depends upon the fact that bones consist, to the amount of one-third their weight, of cartilage, or animal matter, which under the influence of warmth and moisture, readily decomposes, (ferments or decays,) and loses its texture so that the bones fall to dust.

From the closeness and solidity of the bony structure, decay is excited and maintained with some difficulty. A single bone, or a heap of bones, never decays alone, but dries and hardens on exposure. If, however, bones in quantity be brought into close contact with some easily fermentable moist substance, but little time elapses before a rapid decay sets in.

So too, if fresh crushed bones are mixed with sand soil, or any powdery matter that fills up the spaces between the fragments of the bone, and makes the heap compact, and then are moistened with pure water, the same results takes place in warm weather, though more slowly.

The practical process may be as follows: The bones, if whole, should be broken up as far as convenient by a sledge-hammer, and made into alternate layers with sand, loam, saw-dust, leached ashes, coal ashes, or swamp muck, using just enough of any one of these materials to fill compactly the cavities among the bones, but hardly more. Begin with a thick layer of earth or muck, and as the pile is raised, pour on stale urine or dung-heap liquor enough to moisten the whole mass thoroughly, and finally, cover a foot thick with soil or muck.

In warm weather the decomposition goes on at once, and in from two to six or more weeks the bones will have entirely or nearly disappeared.

If the fermentation should spend itself without reducing the bones sufficiently, the heap may be overhauled and built up again, moistening with liquid manure, and covering as before.

By thrusting a pole or bar into the heap, the

progress of decomposition may be traced, from the heat and odor evolved.

Should the heap become heated to the surface, so that ammonia escapes, as may be judged by the smell, it may be covered still more thickly with earth or muck.

The larger the heap, the finer the bones, and the more stale the urine or dung liquor they have been made to absorb, the more rapid and complete will be the disintegration.

In these heaps, horse dung or other manure, may replace the ashes, etc., but earth or muck should be used to cover the heap.

This bone compost contains the phosphates of lime in a finely divided state, and the nitrogen of the cartilage, which has mostly passed into ammonia or nitrates, is retained perfectly by the absorbent earth or muck.

When carefully prepared, this manure is adapted to be delivered from a drill-machine with seeds, and, according to English farmers, fully replaces in nearly every case, the superphosphate made by help of oil of vitriol.

Sea Island Compost.

A correspondent of the *Southern Cultivator*, gives the following mode of making compost, and remarks that a portion of the field manured with this compost, grew "over five feet high and yielded thirty-two bushels to the acre, which, I am told, is a fair average on river swamp, as this was highland rice."

His plan is, "to gather up all the little people on the place, as soon as the leaves begin to fall from our extensive groves about the buildings, making it quite a jubilee to them; after they have swept up and carried off to the cow-pen in wheelbarrows all the leaves fallen at that time, they are treated to a lunch. This forms the nucleus with the marsh grass from the stable every morning; and as soon as the labor can be spared, men are employed in mowing our Blackrush and Marsh Grass, at from six to nine cords per hand per day, as the tides suit. A cart with a long flat body, with a yoke of oxen and a boy, takes off about a cord per load, driving into the hard marsh, filling and scattering it over the pens, then a layer of the most succulent weeds, such as Poke, "Jimson," (*Datura Stramonium*), and all other weeds, mud, cotton-seed, leaves and lime, alternately. When it is required to be applied to cotton land (as it has accumulated since the first operation of leaf-gathering with our little people, as a source of amusement to them and profit to us, some four or five feet deep of solid, well-rotted manure in every pen you saw,) it is cut through and carried off in carts by oxen, and strewed along deep furrows run in each old cotton alley by a double mould board plow and two oxen, another small plow following, throwing up a furrow on each side, forming the bed and retaining the rich grasses to become the future pabulum of our fine Sea Island Cotton.

"For corn, it is applied and the land prepared different, being flush-plowed, raked off the distance the corn is to be planted three, four and a half and five feet deep, partly filled with this compost, partially covered with the hoe, corn planted, and the covering finished."

High Feeding and Manuring.

EDS. RURAL NEW YORKER:—I am afraid my notions of higher feeding don't sit altogether right on the stomach of our friend H. T. B. I will try to set him right, if possible.

H. T. B. says, "If Mr. Johnston's plan of making all our stock gain through winter shall be adopted generally, it will occasion a very large consumption of grain, and would doubtless sensibly affect the departments of labor and commerce." Now, my friend Mr. H. T. B., I would like to make your ideas take a wider range. Supposing my plan of a much higher system of feeding was generally adopted, of course a much higher system of manuring would follow; hence the crops of grain and grass might be more than doubled. Now, I ask what effect that would have on labor and commerce? I think it would have a remarkably good effect on the country at large. Surely cattle that are only frames in spring, and a vast number of dead sheep, can have no good effect on the State, and it always seems to me that farmers who are for five or six months in the year making their cattle and sheep of less value daily, must pursue a course ruinous to themselves, while none are benefitted thereby, excepting those few who keep their stock improving the year round.

Now, Mr. H. T. B., if you are ever to improve the farming in this country, you must look a long way ahead; you must not only take thought for to-morrow, but you must take thought for many years ahead, even if you do not expect to live to see those years. Some one will be tempted by your example, if a good one.

As a proof that high feeding and high manuring is the true course to follow, I will state that I can with more certainty calculate on three tons of hay per acre, now, than I could on one thirty-six years ago, and I can safely calculate on one acre in pasture feeding more stock and much better, than three would have done at that time, while I can almost always make one-half more grain of any kind than I did then—of oats or corn far more than double. High feeding and high manuring did all this. Now, my dear sir, if I can only put the right faith in you, you will make a shining light to the farming community, and you have only to think over and ponder well these remarks. Think, reason on the subject, and you will gain knowledge, so that you will be satisfied that sheep and cattle can never be profitable to the owner when they are not gaining in value in some way; what they consume is a dead loss, and the labor of attending them is lost also. Now, what becomes of him who is making them worse, daily, from November until the middle of May or later? The fact is, that way of keeping stock is absurd nonsense, and I know if men could be induced to reason on the subject there would soon be no such cattle or sheep in the State.

I am never afraid to feed grain when high; if corn is high, beef and mutton are always high. I fed 24 tons of oil meal last year to 501 sheep and got pay for cost of sheep, pay for the oil meal, interest of money on cost of sheep, interest of money paid for oil meal; and \$745 over, to pay for forty days' hay for the sheep. Now, I have often done far better than that. I have fattened more or less sheep or cattle for over thirty years,

and I never lost money but one season; sometimes made but little clear profit, but always on the right side, except one year, and when I kept a regular stock of sheep. When I fed hay all winter I always fed grain or oil meal. I often fed 100 lambs (Merinos) during winter, and other sold in April or at shearing time, and some five to seven years ago, for a few years they netted me \$5 each. I don't take much grain or oil meal to make a lamb fat if in good condition when winter sets in. I have had them average 110 to 115 pounds after being shorn. I don't think 100 wethers, 3½ years old last fall, could have been found on any one farm west of this in this State that would weigh 100 pounds—I mean Spanish Merinos, such as I raised. Good keeping did it all with me. I have only got a little over 100 acres, or will not have after the first of April; indeed I have no more now, my tenant having sold out his fodder, corn and oats to the gentleman that has purchased about 200 acres of my farm. He is now on it with his family, has got on some 350 sheep which he is making fat for spring market; has also plenty of cattle and horses, and I have no doubt will make, or rather is, a very progressive farmer. I have 200 sheep making fat daily, and eight head of cattle, but have not enough stock to consume my stuff. True, I might sell my hay and grain, but then my farm would feel the loss of it bye-and-bye. I never sold hay, corn or oats since I came here, and I have raised as high as 1,400 bushels of corn in a season, and fed it all to cattle and sheep, excepting to make as much pork as my family needed, and always got as much as it would bring in market, and sometimes twice that, *one year excepted.*

JOHN JOHNSTON.

Near Geneva, N. Y., Dec. 17, 1859.

Ammonia from the Air.

There are two modes in which ammonia is added to the soil from the air, and by which a very high degree of fertility can be attained without the use of guano; they are the water which comes from the atmosphere, whether in the shape of dew, rain, or snow, and the absorbing power of the soil itself. Prof. Way found, by analysis of the water collected in an enormous rain gage (1-1000th of an acre) at Rothamsted, the farm of Mr. Lawes, 20 miles from London, that the quantity of ammonia and nitric acid brought down by the rain in the years 1855 and 1856, was equal to about 52 lbs. of guano for each acre, a quantity which, as he says, is not sufficient to account for the whole of the natural fertility of soils, but which must contribute to it materially.

This equivalent of 52 lbs. of guano is, however, by no means a true indication of the whole quantity of ammonia and nitric acid which actually exist in the air, for, if it were, there would be a much larger amount in the water collected after a long interval without rain, than after a short one, since they would have had time to accumulate. But Prof. Way found there was no such accumulation, there being a general though not uniform relation between the quantity of these fertilizers and the quantity of rain, irrespective of the intervals, whence he infers there is a constant and extensive absorption which prevents this accumulation. This he ascribes, in part, as we have seen, to plants, but in a much

greater degree to the soil itself—some kinds of which, he has found by experiment, possess this property of absorption to a very great extent, those with a large quantity of clay being highest in the scale of excellence, and sand the lowest; though even this absorbs more than we would suppose.

With the rain and dew to assist us in bringing down these fertilizers, and the innumerable mouths of the soil always ready to drink them, it might be supposed there would be no occasion for any efforts on our part to extract a still larger supply from the air; but in order to reap the full benefit of "this newly discovered bounty of nature," Prof. Way says, the farmer should resort to "drainage, which promotes the equal flow of water through instead of over his soil; and deep cultivation and thorough pulverization of the land, which brings every part of it into contact with the air. The atmosphere is to the farmer like the sea to the fisherman—he who spreads his net the widest will catch the most."

The most remarkable instance of the benefit of this thorough pulverization of the land, as well as the most striking illustration of the extent to which a suitable soil can be made to absorb ammonia from the air, is found at the Lois Weedon Vicarage. The plan there adopted by Rev. S. Smith is, to sow two rows of wheat one foot apart, and leave between each set of rows a strip three feet in width; this "fallow" strip is deeply turned with the spade in the fall, so as to bring up a part of the subsoil, which is well mixed with the upper soil, and both are then kept constantly fresh, by frequent working with the fork; in the ensuing autumn the two rows of wheat are sown on this strip, and that occupied by the first two, in turn undergoes the same process of fallowing as the other; so that the strips are alternately in wheat and fallow, and only one-half of the land is actually in wheat each year. The peculiarity of this plan is the thorough pulverization of the soil, and the constant exposure to the air; for not only are the fallow strips so exposed, but the surface between the rows of wheat is also kept constantly fresh by the horse-hoe; and so great is the quantity of ammonia absorbed by this intimate "mixture" of the soil and atmosphere, that Mr. Smith had, up to 1857, planted a crop of wheat for 12 successive years on the same land without a particle of manure, and the last crop was very nearly if not quite as good as any of the others, the average being about 40 bushels to the acre.

The soil on which this has been done is, of course, naturally very rich in mineral ingredients, and possesses the power of absorption in a remarkable degree, but the result would, so far as the ammonia is concerned, be the same, except in degree, on all soils, for they all possess a certain power of absorption which could be brought into constant activity by these or similar means.

These facts are gathered from several essays in the Journal of the Royal Agricultural Society of England, and are sufficient to show that the atmosphere is an inexhaustible reservoir of ammonia, as well as carbon, and suggest the inquiry whether by the use of suitable crops and proper tillage we can not draw from it such a supply as would render us independent of guano and other ammoniacal manures.—*Ohio Valley Farmer.*

The American Farmer.

Baltimore, February 1, 1860.

TERMS OF THE AMERICAN FARMER.

Per Annum, \$1 in advance—6 copies for \$5—13 copies for \$10—30 copies for \$20.

ADVERTISEMENTS.—For 1 square of 8 lines, for each insertion, \$1—1 square per annum, \$10—larger advertisements in proportion—for a page, \$100 per annum; a single insertion, \$15, and \$12.50 for each subsequent insertion, not exceeding five—payable quarterly in advance.

WORTHINGTON & LEWIS,

Publishers of the "American Farmer,"

CARROLL HALL, S. E. Corner Baltimore and
Calvert streets, Baltimore.

Agricultural Bureau.

We learn with much pleasure that the Secretary of the Interior proposes to establish a Bureau of Agriculture in place of the present Patent Office connection, and that he has invited Hon. Thomas G. Clemson to organise it, and afterwards act as its head. We heartily endorse the opinion of the Quarterly Journal of Agriculture that "the selection is an excellent one, and the agriculturists of the Republic will congratulate Mr. Thompson and each other, that he has found 'the right man for the right place.' " "A gentleman of rare scientific attainments," says the Journal, "Mr. Clemson is also a practical farmer, who carries his theories into successful and profitable practice. Distinguished abroad as an accomplished diplomatist, and recognised there and at home as a scholar possessing high attainments, he is no less esteemed by his neighbours for the success which has attended his labours in regenerating a worn-out plantation near this metropolis, where he has resided since his return from Belgium."

We bespeak for Mr. Clemson the cordial sympathy and support of the agricultural community and press, in an undertaking so full of promise to the agricultural interests of the country. He has the ability, the position and influence, to give to the post he will occupy, a character and importance, somewhat more proportioned than heretofore, to the magnitude of the interest it is intended to represent.

SCIENTIFIC AMERICAN.—Hon. Judge Mason, of Iowa, who made himself so popular with the inventors of the country while he held the office of Commissioner of Patents, has, we learn, associated himself with Munn & Co., at the Scientific American Office, New York.

Covering with Straw.

Among the numerous excellent agricultural addresses we have received recently, is that of Col. John S. Sellman, of Anne Arundel county, delivered before the Agricultural Society of Charles county. Mr. Sellman, though for many years a leading politician in the State, is lately more interested in agriculture than politics, and is one of the best practical farmers in a section of country famous, not less for its fertility than for the skill and intelligence with which it is farmed.

We observe that Mr. S., among many useful suggestions we should expect from his long experience and careful observation, commends highly the practice of covering the surface of the fields with straw and other refuse matter, as having been practised by himself and his neighbours, with marked success, for a number of years. We are quite familiar with this practice, and when it is known how simple and how very effective it is as a method of disposing of surplus straw, corn stalks, &c., and how extensively it is now known and done, it seems very absurd to find persons who assume to teach agriculture, advising that they be converted into laborious composts. So far as such litter may be necessary for the comfort of animals, and for absorbing the moisture of excrements, they should be used freely. Beyond this, all the tedious handling and re-handling, hauling and re-hauling of the straw of thousands of bushels of wheat, in the vague hope of adding something to its inherent value by the process, is egregious folly. Instead of this troublesome treatment, take the surplus directly to such portion of your next year's cultivation as you wish to improve, spread it a foot in thickness upon the land, and let it lie. If a most marked and permanent improvement does not take place, the soil is different from any within our knowledge. Whether it is the chemical effect upon the soil, caused by the covering, or whether the myriads of worms and insects which swarm underneath it, first working and dividing the soil, and as they perish leaving deposits of phosphoric acid and ammonia; whatever the theory of the action may be, certain it is that the appearance and very constitution of the soil is thoroughly changed, and a hard, bare, barren knoll is converted into a friable, fertile loam.—Such a change is hardly obtained otherwise, but by a long course of working and manuring. Let those who distrust it give it a trial, and we are quite sure they will be fully satisfied with the experiment.

Plough well, manure well, cultivate well.

Inspection of Fertilizers.

We observe that Mr. Watkins, of Howard county, Chairman of the Committee on Agriculture in the Senate, has asked leave to introduce a bill for the purpose of detecting and punishing frauds in the sale of Guanoes, &c. in Baltimore city. The State Chemist in his report directs the attention of the Legislature to the importance of the subject. Our correspondent, "Patuxent Planter," in his article on another page, earnestly and forcibly seconds the views we presented in our January number with reference to the matter. No one in fact who considers the amount of money expended annually in the various fertilizers which go out from this market, the great temptation to frauds, and the facility with which they may be committed, will fail to recognise the necessity of some method of protection.

The money value of the several fertilizers introduced into the Baltimore market for sale during the past year exceeded the sum of three million of dollars. Forty thousand tons of Peruvian Guano at \$60 per ton, \$2,400,000; twenty thousand tons of Phosphatic Guanoes, at an average of \$20, \$400,000 more, and the Bones, Compounds of Bones, Animal Manures, &c., \$400,000 more perhaps, give us more than this enormous value, offered to the farming community in this market within one year. That these fertilizers may be adulterated to the extent of ten *per cent.* of their value without the detection or even suspicion of fraud, cannot be doubted. That the facility with which frauds may be committed and large profits realised, has a tendency to attract dishonest dealers to the trade is manifest. That very gross frauds have been detected occasionally by accident, is well known. But the laws of the State afford really no adequate protection against them, and so enormous an outlay of money is made at the mercy of those who, by whatever means, can get some amount of credit for honest dealing. We do not at all design to discredit generally the dealers in fertilizers. We are well aware that there are men of character among them as reliable as in other branches of trade, but it is a fact well known to us, that there are those who have puffed and advertised themselves with greatest diligence and some success, who are least worthy of the confidence they have sought.

The extent and value of the interests involved in this trade, as regards the agricultural community only, its great importance to the city of Baltimore, and the interests of honest dealers, alike demand that it should be carefully guarded by law against adulteration and fraud. We need not say, therefore, that we are glad to see that

the Committee of Agriculture in the Senate have had their attention drawn to it by the chairman.

While we do not doubt that the several committees of the Legislature whose attention shall be drawn to the subject, will bestow upon it such deliberation as it may require, they will find it no doubt a difficult matter to determine what ought to be done. The State has already an Inspector whose duties are the inspection of Peruvian and the Phosphatic Guanoes. The inspection of these are of some value, we do not doubt, but of much less consequence than the proper examination of the various mixtures and preparations offered for sale. The Peruvian Guano is of very uniform quality, and there is no suspicion of any attempt to adulterate it until it leaves the hands of the Peruvian Agents here. The only difference in quality which the inspection detects, is the comparatively small proportion of each cargo which gets wet aboard the vessels. Of the Phosphatic Guanoes a large proportion goes into the hands of manufacturers, who could very well afford to protect themselves. Without proposing, however, any change as to the inspection of these articles, something should be done with reference to the others. Our own opinion accords substantially with the suggestion of the State Chemist and of our correspondent, *Patuxent Planter*. We do not however agree with the latter that each farmer should be taxed with the cost of examination by a chemist. We are very sure that such a provision would make the law of no effect. But let the State provide a competent officer, with a fixed salary, whose duty it shall be to examine all samples submitted for analysis. We see no objection whatever to making this a part of the duty of the State Chemist; let him have an assistant with a sufficient salary to enable him to devote his time to it, and we do not doubt the work will be properly done. As to the details of his duty under the law, that is a matter which a competent and faithful officer would soon best determine for himself, but he should be required to get samples, properly authenticated, of all such articles as are offered and sold as fertilizers, and publish the result of his examinations from time to time, with the names of the parties who have sold and the parties who purchased it, in each case.

THE PERUVIAN AGENCY.—By reference to the advertisement of the Peruvian Agency it will be seen that Mr. Mur, who was associated with Mr. Barril, and had charge of the branch of the Agency in this city, has retired from the firm, which will hereafter be conducted under the style of Barril & Bro.

Our correspondent, Dr. R. T. Baldwin, of Winchester, in pursuance of his peculiar views on the subject of fertilizing the soil, in an article on another page, sets forth certain propositions which he calls upon us to disprove. In reply, we have to say that we are not required by the established rules in such cases to disprove his assertions. If we disagree, we may simply deny their truth and call upon him to maintain them by proof. When this is done, we must admit the sufficiency of the proof or show its deficiency. For instance, take his Proposition No. 1, where he says, "of the various changes which vegetable and animal substances undergo during their decomposition, the product of the one only which proved to be the aliment of plants, is the residue of putrefaction." This, as it stands, is mere assertion, a mere statement of something to be proved. Not assenting to it, we simply deny, and the Doctor must prove its truth. In the absence of such proof, let us suggest that we are entirely unable to understand the reason of this proposition. No one certainly doubts the necessity of reducing whatever is to become the food of plants to the last state of division, to enable them to assimilate it, but that it *must* be brought to this condition by the "process of putrefaction," is a necessity not apparent. Why, for instance, the mineral elements existing in a tobacco stalk may not as readily enter into a new plant when reduced by burning as by the "process of putrefaction," we cannot see.

In another proposition it is maintained that "it is not true that the impoverished condition of any soil proceeds from a deficiency in one or more of its mineral constituents," and it is asserted, in evidence of this, that "all soils alike may be made exceedingly fertile by shade alone." On this point we should have to inquire first, is it shade *alone* that produces the effect observed from covering land? May not shade induce some other agency, as, for instance, the harbouring and burroughing of myriads of insects, worms, &c., which first work and lighten up the soil mechanically, and then, in their perishing remains, leave both nitrogen and the mineral element, phosphoric acid? But admitting that "shade alone" is the fertilizing agency, how can Dr. Baldwin assert that "*all* soils alike" are made "exceedingly" fertile by it. Has he tried *all* soils alike, or have his experiments been confined necessarily to very few soils? It would require, we submit, a great number of experiments and on every conceivable variety of soil to establish such a fact. We can account for Dr. Baldwin having been misled upon this point. It very rarely happens, we think, that there is an actual

"deficiency" of one or more of the mineral elements of plants in any of our cultivated soils, and the Doctor does not state accurately the theory upon this point. But it does often happen, that one or more of these essential elements are, in the wise economy of nature, so bound and locked up in various combinations that they are not available as food of plants in full supply. It is one of the arts of intelligent culture to break up this combination and afford larger measure of these elements. That this is one of the chief uses of Lime is generally conceded. The marvellous effects of Peruvian Guano we think can hardly be accounted for on any other principle. If "shade alone" is such an agency, as Dr. Baldwin asserts, it acts in the same way possibly, and his observations and experiments extending only to soils not actually destitute of any one mineral element, he has assumed too hastily that "*all* soils alike" may be fertilized in the same way.

As we said in the beginning, we do not feel obliged to argue these several propositions of Dr. Baldwin, and we only make these suggestions in passing. We approve highly of using all coarse litter, straw, &c., that may not be wanted in littering stock, to cover the surface of the soil, and we are by no means fearful of using stable manures on the surface, lest the strength will evaporate, but we cannot yet accept the "shade theory" nor the several inferences drawn by Dr. Baldwin from the facts under his observation, without further proof.

Gen. Brandon, of Mississippi, to whom we shipped two young bulls of Mr. Bowie's Devon stock, has been breeding Devons for many years, having obtained through Mr. Skinner, and afterwards through Mr. George Law, the best to be had from the importations of the time at which he purchased. He writes us as follows with reference to these:

"The stock and other articles shipped by you for me, came to hand in good order and condition. I am under a thousand obligations to you for your prompt and polite attention to my order. The Devon bulls were universally admired. I think they are vastly superior to any I ever received before."

We learn from a correspondent in Accomac county, Va., that "Only" the late residence of Gov. Wise has been purchased by Thomas C. Pitts, Esq., late of the firm of J. Lockington & Co., of this city. The farm contained 434 acres, and was sold first to Edward A. Finney, Esq., for \$18,000, who afterwards sold it to Mr. Pitts at an advance of \$500 on that price.

The Maryland Agricultural College.

On Tuesday, 17th January, a committee of the Trustees of the Maryland Agricultural College, composed of C. B. Calvert, President, Col. Charles Carroll, Hon. J. Dixon Roman, Col. J. H. Sothoron and N. B. Worthington, met at Annapolis and presented to the Legislature the report required by their charter. The committee had a conference with the Agricultural Committee of the two Houses, and invited the Legislature to visit the College on Saturday, the 21st inst., which invitation was accepted.

The State Agricultural Society.

A bill reported to the House of Delegates from the Committee on Agriculture, for the relief of the Maryland State Agricultural Society, asking a donation of \$5,000 and a further annuity of \$500, has been defeated by a large vote.

We are indebted to Philip T. Tyson, Esq., the State Agricultural Chemist, for the perusal of the manuscript copy of a portion of his report to the Legislature, from which we make an extract on the adulteration of fertilizers. We regret that we have not received a printed copy of the report in time to notice it more fully in this number.

He has our thanks also for a copy of the geological illustrations designed to accompany his report.

We ask pardon of our Philadelphia new neighbour, the *Farmer and Gardener*, for having so long overlooked its claims to friendly notice. —It is a large, handsome and well conducted monthly, in the competent and experienced hands of A. M. Spangler—see advertisement.

We have also from Mr. Spangler his "*Year Book of the Farm and Garden*," a beautiful little volume of original matter, very useful as a book of reference for the farm and the garden—price 25 cents.

THE HORTICULTURIST.—This excellent horticultural monthly, established in 1846 by A. J. Downing, maintains its high character. It is published in New York by C. M. Saxton, Barker & Co., to whose advertisement in our January number we ask attention.

The *Weekly Southern Planter* is a promising young weekly, which we welcome to our exchange list. It is published at Jackson, Miss., by Power & Cadwallader, Wilson A. Parker, editor—price \$2 a year.

MR. WM. C. LIPSCOMB, JR., of Washington, D. C., is our Travelling Agent for the States of Virginia and Maryland.

OUR AGRICULTURAL EXCHANGES.—We regret that our space does not allow us to give even a short notice of our excellent agricultural exchanges, many of which come to us at the beginning of the year much improved in appearance and with indications of fresh life and vigor. A number of them we would take especial pleasure in commending, if we could do so without what might appear an invidious comparison.

THE STOCK JOURNAL.—We ask attention to the advertisement of the *Stock Journal*. Being the only publication devoted exclusively to Stock, this valuable monthly should receive a patronage commensurate with the importance of this great interest.

We have received from Professor John A. Porter the following programme of a course of Agricultural Lectures to be delivered at New Haven, during the month of February. We commend the matter to the attention of those who may have the opportunity of devoting a month to what we do not doubt will prove a very profitable course of instruction:

PROGRAMME—FIRST WEEK.

Science in its Relations to Agriculture.—Chemistry—Prof. S. W. Johnson. Meteorology—Prof. B. Silliman, Jr. Entomology—Dr. Asa Fitch. Vegetable Physiology—Daniel C. Eaton.

SECOND WEEK.

Pomology, &c.—General Pomology—Hon. M. P. Wilder. Grapes—Dr. C. W. Grant. Berries—R. G. Pardee, Esq. Fruit Trees—P. Barry, Esq. Fruits as Farm Crops—L. F. Allen, Esq. Arboriculture—Geo. B. Emerson, Esq. Agricultural Chemistry—Prof. S. W. Johnson.

THIRD WEEK.

Agriculture Proper.—Drainage—Hon. H. F. French, Esq. Grasses and Irrigation—J. Stanton Gold. Cereals—Joseph Harris, Esq. Hops, Tobacco, &c.—Prof. Wm. H. Brewer. Cultivation of Light Soils—L. Bartlett, Esq. English Agriculture—L. H. Tucker, Esq. German Agriculture—Dr. Evan Pugh. Agricultural Education and Statistics—Prof. John A. Porter.

FOURTH WEEK.

Domestic Animals, &c.—Principles of Stock Breeding—Hon. Cassius M. Clay. Stock Breeding in the United States—Lewis F. Allen, Esq. Breeding for the Dairy—Charles L. Flint, Esq. Horses—Sanford Howard, Esq. Breaking and Training Horses—Dr. D. F. Gulliver. Root Crops and Sheep Husbandry—T. S. Gold, Esq. Pisciculture—John C. Comstock, Esq. Rural Economy—Donald G. Mitchell, Esq. Agricultural Associations—Mason C. Weld, Esq.

Tickets for the whole course \$10; for any single week \$3; single lectures 25 cents.

Speaking of the various fertilizers offered for sale in the Baltimore market, the State Chemist in his report to the Legislature says: "One class of these, called 'Manipulated Guanoes,' are said to consist of mixtures of Peruvian and Phosphatic Guanoes ground very fine intimately mixed together in a second grinding. The manufacturers claim, with reason, that by the perfection of their machinery they are enabled to reduce the Guanoes to a finer powder, and to effect a more intimate mixture." The State Chemist, it will be observed, officially ignores, whether intentionally or unconsciously, we do not know, a certain riddled mixture which has been prepared and sold in the market, as "Manipulated" Guano. Here recognizes the term "Manipulated" as applicable only to "Guanoes ground very fine," "by the perfection of their machinery"—riddling out the lumps as any farmer may do, is not the process which the term "Manipulated" expresses.

We are indebted to Mr. Yardley Taylor for two roots of the *Dioscorea* (Chinese Yam.) Having had them well cooked, we are better pleased with the Yam than on any previous trial. It cooked finely, bursting open in beautifully white flakes, and when we understand its proper seasoning and preparation, it may make a very agreeable addition to our garden vegetables.

Mr. Taylor says: "we are beginning to think well of them; the greatest objection is the difficulty of digging them out of the ground. They penetrate two or three feet deep, particularly in a sandy soil, which seems to suit them best."

AGRICULTURAL SOCIETY AT GOLDSBOROUGH, N. C.—We are pleased to hear from the President of this new society, J. A. Washington, Esq.; that it is starting into existence under most favourable auspices, having a cash capital of \$7,000, and will offer, at its first Exhibition next fall, premiums to the amount of \$3,000, perhaps \$4,000. The Society opens its gates wide, and invites competition from all quarters. Our stock breeders and implement manufacturers should bear it in mind, as they will no doubt find this a desirable point at which to exhibit.

AGRICULTURAL SOCIETY AT LEXINGTON, VA.—A genial friend writes us as follows of the Society at Lexington, Va. We are gratified at the many signs of life and energy in our agricultural community. Our friend has laid out here a tour for us which we do not doubt would afford us as much pleasure as profit, and a good deal of both: You are perhaps aware that we had a fair at

our county seat on the 23d and 24th of November, which was a decided success.

The executive committee first met at our October court, when committees were appointed to purchase land and make the necessary arrangements to hold a fair in November. Major Gilliam, of the Military Institute, was chosen President, who, with a few active assistants, succeeded in purchasing about nine acres of land, surrounding the same with a good plank fence, putting up a good frame house, and erecting some fifty stalls for horses and cattle, which, with some tents from the Institute, gave ample accommodation for some 4,000 or 5,000 persons, who attended the fair. We had some of as fine Durham cattle on exhibition as I have seen anywhere, and altogether the exhibition was very creditable to the county—and I have no doubt, by another year we will be enabled to have a most capital exhibition; and as we propose to hold our fair early in October, I hope it may suit your convenience to visit our Virginia Springs, take our fair on your way down our magnificent James River, by way of Lynchburg, to Richmond, Petersburg, Norfolk, and thence up the Chesapeake to Carroll Hall. I give you a cordial invitation to partake of the hospitalities of my house, and hope it will suit you to take the range of the different fairs to be held in Virginia next fall.

How Much Hay for a Horse.

A correspondent of the Wisconsin Farmer, in an answer to the question, "how much hay will keep a good sized horse per day or per year?" says:

"I have asked this question many times, and universally received for an answer, 'I don't know.' Well I do, having kept horses for twenty years—from five to twenty at a time. I concluded I would know. Five pounds of hay at a feed or fifteen pounds per day, with the usual allowance of oat-meal (twelve quarts per day) or its equivalent in shorts, will keep a good sized horse—one of eleven hundred and fifty pounds weight—in fine condition for all road or farm work, and is amply sufficient; some will keep on considerably less, but this is a fair average, and can be reckoned on as sufficient for the first hundred horses you find.

"In connection with this subject, I will state that I have been feeding from four to five horses for the last three months with cut feed, the advantages of which I hold to be equal to many times the cost of the best cutting box in the State, where several horses are kept. In the first place, it is economy to cut feed, so far as its consumption is concerned, less feed being wasted than when fed whole or uncut. Again, straw or corn stalks can be mixed with hay to the amount of one-third or one-half of the quantity fed, and if well prepared, the animals will eat it clean, and will thrive better, and in all respects it will well repay for the time and expense over the common method of feeding.

"One consideration of quite equal importance is, that our horses are free from cough or heaves, which are inseparable from feeding clover or dusty hay, unless cut and well dampened."

The Great French Henery.

We published more than a year ago a famous account of a wonderful establishment of a M. De Sora, for hatching and raising chickens, in France. We were indebted for this article to some Northern contemporary, we do not know which, and the statement was so circumstantial, that we accepted it without suspicion. We had some reason afterwards to think that it might be not true, and the following communication from a correspondent at Eastville, Va., seems to confirm this view of it. The article went the rounds of the agricultural press, and if it was really a statement of fact, we should be glad to be informed of it:

DEAR SIR: In the *American Farmer* for October, 1858, page 109, is published an article headed "The Great French Henery," marked "selected," but not specifically credited to any paper. I was greatly interested in it, and with a view to establish one on the same plan here, wrote to Mr. Mason, then our Minister at Paris, for additional information on the subject. After careful inquiry in every quarter from which information might probably be obtained, he wrote me word nobody knew anything of such an establishment, and it was probably a mistake. I then wrote to a friend, then in Paris, detailing the facts and invoking his aid in the investigation. He was kind enough to give himself much trouble to procure the information—applied to the police—examined the directories containing lists of all names and all occupations in France—called on the editors of all the principal agricultural journals in Paris, the chief poultry and egg dealers, inventors of egg-hatching apparatus, hotel keepers who bought quantities of eggs, poultry, &c., but nowhere could hear anything of M. De Sora or "The Great French Henery." His conclusion is that the whole matter is a hoax. Notwithstanding this, the article is so detailed and minute in its statements, that I do not feel satisfied and have determined to make another attempt to find it out. Please inform me where you obtained the article in question. If there is no truth in it, it is right it should be exposed, as others may be misled by it.

United States Agricultural Society.

EIGHTH ANNUAL SESSION.

The United States Agricultural Society, met Wednesday morning in the apparatus room of the Smithsonian Institution. About forty members were present at the opening, which increased to sixty or more, in the course of the sitting. Fourteen States and Territories were represented.

The President of the Society, Tench Tilghman, Esq., took the chair at a few minutes after 10 o'clock, and called the meeting to order, immediately on which he made his annual address.

The proceedings and discussions, are of too great length for insertion in this paper. The following gentlemen were chosen as officers for the ensuing year; Gen'l. Tilghman, having declined a re-election as President.

For President—Hon. Henry Wager, of Western New York.

For Vice Presidents—N. B. Cloud, of Alabama; Sylvester Mory, Arizona; Thomas H. Collins, Indiana; A. W. McKee, California; H. A. Dyer, Connecticut; A. G. Fuller, Decotah; John Jones, Delaware; W. W. Corcoran, D. C.; S. A. Mallory, Florida; Richard Peters, Georgia; S. A. Buckmaster, Illinois; Legrand Byington, Iowa; W. F. M. Army, Kentucky; W. L. Underwood, do.; J. D. B. DeBow, Louisiana; John Brooks, Massachusetts; James H. M'Henry, Maryland; Ezekiel Holmes, Maine; N. M. Harrison, Miss.; Henry Ledyard, Michigan; H. M. Rice, Minnesota; J. R. Barrett, Missouri; H. F. French, New Hampshire; George Hartshorn, New Jersey; B. P. Johnston, New York; Man. A. Otaro, New Mexico; W. T. Brown, Nebraska; H. K. Burgwyn, North Carolina; F. G. Carey, Ohio; J. H. Lane, Oregon; A. Clement, Pennsylvania; Elisha Dyer, Rhode Island; F. W. Alston, S. C.; Thos. Affleck, Texas; Wm. H. Hooper, Utah; Fred. Holbrook, Vermont; W. A. Spence, Virginia; T. W. Hoyt, Wisconsin; Isaac I. Stevens, Washington Territory.

For Executive Committee—Benj. M. Huntington, New York; John McGowen, Penn.; Fred. Smyth, New Hampshire; John Merryman, Md.; Horace Capron, Illinois; J. M. Cannon, Iowa; Josiah W. Ware, Virginia.

Ex-Officio—Marshall P. Wilder; Tench Tilghman, Benjamin Perley Poore.

For Treasurer—D. B. French, of District of Columbia.

For Secretary—Benjamin Perley Poore, of Massachusetts.

And on Friday the Society adjourned, *sine die*.

Manuring a Farm by Stock Feeding.

Mr. Mechi says, in the *Mark Lane Express*, that "making meat was the cheapest way of obtaining manure," and quotes some authority on the subject. In concluding his letter he remarks:

"Nothing pays me better than giving my sheep one pound of rapecake per day; as they get fat they will eat nearly one and a half pound per day. Rapecake costs £6 per ton; as manure it is worth £3 3s. per ton, and we believe that seven pounds of rapecake will make one pound of mutton. Fattening hogs entails a loss of ten per cent. as an average, but still it is much cheaper than guano: fifty-six pounds of barley meal is generally sufficient to produce 8 pounds of pork. Fattening bullocks, on the principle laid down by Mr. Horsefalls is also a cheap way of obtaining manure. When you have made your manure, take care not to waste an ounce of it. This has been my custom for the last fifteen years, and as a consequence my farm teems with fertility. The slops and all the excreta from the house should all go on the farm. Guano pays very well on a distant field, or when you are too busy to cart manure; it is also a good addition to the farm manure for a good crop."

The amount of taxable property in Kansas, as shown by the report of the territorial auditor, is \$15,000,000. The indebtedness of the territory amounts to \$26,000.

[For the American Farmer.]

Black Swan—(Cygnus Atratus.)

In form the Black Swan is not unlike the white swan of America and Europe, but in size it is somewhat less. The whole plumage is only relieved by a small portion of white, which the primary and some of the secondary quills show. The bright red upper mandible is banded with white anteriorly, and at its base in the male, there is often a light tubercle, which is wanting in the female; the lower mandible is grayish white; the legs and feet are of a dull ash colour. The Black Swan is a native of Swan Isles, New Holland; I style it the peaceful monarch of the lake. They continue all the time making a noise like the sound of some one pulling the strings of a violin, which is pleasant to hear; its music is celebrated. They would feed out of my hand, and when they saw me approach, they would wait, and the moment I would leave they would go with me, piping their sweet music. The beauty and graceful motion and majesty of the Black Swan, when wafted along a piece of water, attract the admiration of every beholder. In their favourite element they regularly wash and clean their feathers every day, adjusting their whole plumage with their bills and squirting water on their back and wings with the most assiduous attention. The several pairs I imported, all washed themselves daily. On one occasion, just as a thunder-storm was coming on, a pair of swans, with seven young ones, being out, the male and female seemed fearful of some calamity. The young were collected between the parents, and the whole party pushed up stream; three of the young ones mounted on the back of the female swan, who elevated her wings to receive them, the black queen's metallic, brilliant plumage contrasting beautifully with the gray down of the little ones. The storm now came on with thunder and lightning; the wind at its full range, the water of the lake rolling to and fro; there was a scared appearance about the whole party, and the cause was soon manifest. A magnificent white swan came ploughing up the water, ready to make battle with the male black swan; the female black swan seeing the enemy of her partner and family, she and their little ones hurried up stream. Up came the mighty bird; the male black swan came to meet him. Proud as the white swan thought himself, the black swan threw back his neck between his arched wings and confronted the giant; this was unexpected; they kept sailing backward and forward, abreast of each other, across the stream, like two war ships; and the watchful turns of their graceful necks and bodies, as each tried to take the other at advantage; each elevated himself on the water and made show of combat. At last the giant plunged at his rival; the fight was terrific. By this time the family, under the guidance of the affectionate mother, were safe; the female white, coming up to the duel, and her partner seeing her, let go his rival, thinking it best for all parties; so the black swan made for his family. It was a magnificent sight to see a duel by swans.

"See the chariot at hand, hero of love,
Wherein my lady rides—
Each that draws is a swan or a dove—
And thus the car love guides."

These birds are now in the collection of Mr.

Thomas Winans and E. F. Jenkins, at their beautiful villas in the city of Baltimore, whose collection of rare birds cannot be extolled in America.

J. JACOB BOWER.

From the State Chemist's Report.

Adulteration of Guanoes.

Among many chemists in Great Britain, who have paid much attention to Guano, as well as to its adulterations, I may mention Prof. Nesbit, of London, Doctor Cameron, of Dublin, and Prof. Anderson, of Glasgow. It does not appear necessary, however, to quote the results of any of their numerous analysis, as a sufficient number have been stated to shew the composition of the adulterated Guanos accessible to the farmers of Maryland.

It appears that the adulteration of Guanos, especially the Peruvian, is very extensively practiced in Great Britain, and I regret to be obliged to believe that frauds of this kind are also perpetrated in our own country.

In order to protect our farmers against such impositions, the system of inspection of Guano was instituted in our State, and it has doubtless been a means of protection to a considerable extent. But yet it appears from the testimony of many farmers, that they have palmed upon them sometimes inferior or adulterated Guano, with the Inspector's mark upon the bags. Gentlemen have informed me that boatmen who have brought them Peruvian Guano, have offered to furnish them with good new bags, for the Guano bags containing the Inspector's mark! Suspecting however, that they were wanted for dishonest uses, they refused to part with them.

There is a peculiar earth on the southern slope of Hampstead Hill, near the eastern limits of Baltimore, of which I have been informed large quantities have been, and may still continue to be secretly carted into the city. There being no conceivable honest use for which this material can be brought into the city, and it being very similar in color to Peruvian Guano, it was reported to be used to adulterate that article, the mixture being put up and sold in old Guano bags containing the Inspector's mark! Some months since, the Inspector called the attention of the police to the affair, who arrested parties carting away Guano bags during the night.

The arrest was evidently made at an injudicious time, because upon examination the bags were found to contain only the earth. If however, the parties had been watched until they had taken it to their mixing depot, and completed the crime, they might possibly have been properly punished.

During the late season of active field work, I endeavoured to collect for examination, samples of Guano, ground bones, artificial fertilizers, which had been purchased and received by my farming friends. Finding but few kinds in their possession, I requested that samples might be forwarded me whenever they shall again purchase.

Among others, I got in person a sample of Guano, from Col. Jno. S. Sellman, of Anne Arundel county, which being sold for Mexican AA should have contained phosphoric acid equal to 55 per cent. or more of phosphate of lime, and yet the analysis showed but 36 per cent. In this case the Colonel paid for 50 per cent. more phos-

phate of lime than was implied in the purchase, and if the deficiency had not been discovered, he would have suffered a still greater loss by not applying a proper dose of the phosphate to his soil. How much of this Guano was sold and used by farmers, I have no means of knowing.

Samples of other Guanoes and fertilizers, have recently been received, and are under examination.

In using an ammoniated Guano, we should always mix with it a portion of ground plaster in order to prevent the escape of the ammonia or its carbonate. I may add also, that the experience of those who have several times applied Peruvian Guano to the same field, has generally shewn that after the second or third application, it produces little or no good result, unless other manures are also applied. In England also, the same effects have been observed.

This has been attributed to the large proportion of ready made ammonia, which tends to promote a vigorous growth of crop, and thus rapidly abstract the essential constituents of the soil, including its phosphoric acid. It is for this reason that a better permanent effect results from mixtures of Peruvian and phosphatic Guanoes, than from the former, when applied alone.

FLORICULTURE—February, 1860.

Prepared for the American Farmer, by Wm. D. Brack-
enridge, Nurseryman, Govanstown.

Every individual reader, who possesses a greenhouse or plant pit, feels more or less anxious to have a good display of flowers at this season of the year, and if attention has been paid in carrying into effect the instructions given during the fall and early winter months, we doubt not their most sanguine expectations have in a great measure been realized, by having now in flower *Aca-cias*, *Camellias*, *Cinerarias*, *Calceolarias*, *Scarlet Geraniums*, *Habrothamnuses*, *Linums*, *Verbenas*, *Roses*, *Lauristinuses*, *Stocks*, with monthly *Carnations*, &c., &c., coupled with the pleasure of watching the opening bud expanding into flower, the interest is still further heightened, by seeing daily, seeds of some favourite plant, pushing their cotyledons through the surface of the earth; or, it may be, in finding that cuttings they have put in, are sending out young leaves, which is very often a sure sign that they are also making roots; and we would remark of the latter, that so soon as roots from one to two inches in length are pushed, the young plant should be potted off—as the gardeners term it, that is, placed in a single pot by itself, observing always to use a lighter earth for such, than that in which the same individual will succeed, at a more advanced state of growth; seedling plants ought never to stand long in the same vessel in which they were sown, otherwise the roots will become matted, and the tops etiolated; but so soon as they have made a few leaves, and can be handled, they should be pricked out into boxes or seed pans, when they will form fine stocky plants suitable for pot culture, or planting out in the open border.

Do not underrate the importance we place in attending promptly to the extirpation of all kinds of insects, that are in the habit of attacking plants under an artificial state of cultivation, va-

rious species of *Aphis* and *Coccus*, together with the Thrip, are the most annoying at this season of the year, where the atmosphere is warm and close.

Pay attention also, at least once every two weeks, to re-arrange the plants on the stage, picking off all dead leaves, turning each specimen half round to the light, so that the head may not grow oblique; bringing also forward to a conspicuous position, such as are coming into flower, while such as are fading may be removed to a less conspicuous place; for the beauty of a plant collection, consists not so much in the great quantity of flowers which may be present to the eye, as in the neat, healthy, and orderly manner in which the whole is kept. Observe also, that the water used, be soft, and about the same temperature as that at which the house is kept; and such plants as are in a vigorous state of growth, will derive great benefit from the application of liquid manure at the roots, once or twice every week.

Camellias, in bloom, will require shade, as the sun in clear weather, will not alone injure the flowers, but the leaves also; inarching and grafting may now be practiced.

Pansies—Shift into large pots, and keep them in a cold frame, or cool part of the greenhouse.

Japan Lilies, for blooming in the house, should now be potted, if it has not already been done.

Erics and *Epacrises*, should be kept in a cool, airy part of the house, near the glass, and such as require shifting into larger pots, should have it attended to now, before warm weather set in.

Cactuses that are beginning to grow, will require a more liberal supply of water; repot such as require it.

Clerodendrons, and such other plants of a similar nature, as have been laying dormant during the fall and winter, may now be re-potted, pruned back, and placed in a warm situation.

Sow seeds of such climbers as *Maurandias* and *Cobea Scandens*, in order to have them in a forward state against the planting out season.

Astrameries, should now be fresh potted, and great care ought to be taken not to bruise or break the roots, when performing this operation.

Flower seeds of the more tender kinds may, toward the end of the month, be sown in a hot bed. Pay attention to the instructions given last month in relation to the treatment of *Fuchsias*, *Pelargoniums*, *Roses* and *Cinerarias*.

Cold Frames.—Keep a good look out and give your cold frames and pit, a liberal supply of fresh air in fine weather; see also, that no plant is suffering from too much moisture, and that the mice are not making their meals off the tender stems and roots, of some of your choice-things.

Pleasure Grounds.—It is yet a good season to cover or top-dress lawns, with some enriching substance—as guano, bone dust, ashes or lime. Stable manure, is also good, were it not, that it contains (in most instances,) the germs of so many bad weeds. Much work may be now done in this department, in the way of trenching, making new, and repairing old walks, pruning shrubs, trees and hedges; and the spring work will be very much forwarded, by having piles of manure, and compound soils hauled to the place where they are to be used; it is also of great importance to collect together at this season of the year, into some convenient, though hidden place,

quantities of fresh leaves, manure, sods, earth from the woods, with vegetable matter free of weed seeds; this can be thrown altogether in a pile, which after being frequently turned over and pulverized, forms an excellent compost for flower beds, and ornamental trees, but a quantity of different kinds of earth should be laid up in separate piles to become mellowed, to be ready for use, as occasion may require.

Cotton Seed as a Manure for Cotton.

A correspondent of the *Farmer and Planter*, addresses the following to that paper and asks instruction:

"For the benefit of myself and others, who, like me, need information on the subject, I would be pleased to receive through the *Farmer and Planter*, some instructions as to the use of cotton seed as a manure for cotton—the manner of applying it—the quantity necessary to the acre, and any other information *germain* to the subject, you, or any of your readers, may be pleased to furnish. In my neighborhood, and, I believe, pretty much throughout my district, cotton-seed, when used as a manure, has been applied almost exclusively to corn. Its utility as a fertilizer, in the culture of cotton, is but little known in this section, and a few practical hints on the subject would be duly appreciated. Some agricultural writer—Dr. Cloud, of Alabama, I think, advises that cotton-seed, when used as a manure for cotton, should be sown in the month of February, at the rate of 12 or 15 bushels to the acre, in furrows, from 8 to 10 inches deep, and covered by throwing up two furrows on these, and adding two furrows more just before planting, (about 10th to 15th of April,) so as to form a bed. Is February the best time for sowing the seed as a manure, and would 12 or 15 bushels to the acre be sufficient, where the land, in its natural state, unaided by manure, would yield from 600 to 700 lbs. of seed-cotton to the acre?"

The editor, in referring to the above, uses the following well-timed and pertinent language:

"We have found cotton-seed one of the safest and best manures for corn, wheat, oats, and potatoes, but it has not come up to our expectations as a manure for cotton. A very successful planter of our acquaintance, however, says he will give 100 lbs. guano for 20 bushels of good cotton-seed, and make money by the operation. His method is to plow a deep furrow, drill his cotton seed at the rate of 20 bushels to the acre, in it, and throw two furrows upon it. Do it as early in the winter as you can, and finish your bed before planting. Our correspondent refers to Dr. Cloud. Dr. Cloud takes the ground that if you can get the stalk and the seed, you will be sure of the lint.

1 bush. Cotton-seed weighs.....25 lbs.
1000 lbs. Seed-cotton will give.....25 bushels seed.
15 bush. seed then ought to give.....375 lbs.

Which according to his theory, should make 600 lbs. cotton. Hence, "D.'s" acre with the addition of 15 bushels seed, provided he returns stalk, boll and leaf to the soil, or their equivalent, should give him 1200 or 1300 lbs. cotton. But

every body knows (albeit figures have the reputation of never lying,) how very hard it is to grow upon a field what you can demonstrate, as perfectly easy, upon a sheet of paper. But, while we are on the subject, it may not be amiss to glance at the constituent properties of the cotton-seed, lint and plant, as ascertained by the analysis of Dr Charles J. Jackson;

1000 grs. clean lint yielded.....	15 grs. ash.
1000 " " seed ".....	39 " "
Of the whole plant used.....	25 " "
	Lint. Seeds. Wh'le Pl'ts.
Silica.....	0.150 0.080 0.570
Carbonic Acid.....	4.100 1.018 5.600
Chlorine.....	1.105 0.480 0.239
Sulph. Acid.....	0.779 0.892 0.927
Phos. Acid.....	0.581 10.090 2.403
Lime.....	1.070 1.120 4.478
Magnesia.....	0.250 7.600 2.509
Potash.....	4.412 13.096 0.394
	and Soda. }
Soda.....	2.140 4.018 1.880
Peroxide Iron.....	
	15 39 25

From the above table the seeds are deficient in Silica—of which there is an abundance in most soils—of Carbonic Acid, of which the air will furnish an inexhaustible supply, if the planter will prepare his soil to receive it; of Chlorine, Sulphuric Acid and Lime. One would conclude from this, that Plaster, (Sulphate Lime,) would be a valuable manure. Some of the Alabama planters claim immense benefits from its use. An experiment of three years has satisfied us that rolling the seed in Plaster pays well. There are a great many drawbacks in experimental farming; a great many ifs, and ands, and buts; yet the only hope of arriving at the truth, is to keep trying. We like to have planters put questions; it is a sign they are in earnest, and, although it may puzzle us to answer them, or we may fall very far short of their expectations, we feel that there has been one more step taken forward. What the country needs now, is intelligence, applied to Agriculture; it is worth more than Guano. If every farmer and planter in the country would read an Agricultural journal regularly, our Agricultural condition would soon be revolutionized. And it would not be because he learned so much from the journal, but because it set him to thinking for himself, and begat a spirit of enquiry, which would end in improvement. There is no profession so conservative, so wedded to old opinions, and so averse to new ones, as the Agricultural. And it is for the want of intelligence, properly directed to our own interests, that we are the constant dupes of all manner of humbugs. We jump at every new thing, because it promises wonders, without ever thinking upon its merits. Let us write in the Agricultural journals and provoke discussion—let us meet at the Agricultural Fairs, and compare notes, examine animals, implements, machinery, domestic manufactures, samples of field crops, fruits, and fancy work, and return home resolved to add to its comforts and attractions, and to be wiser, better and happier men, as well as better planters."

Mrs. Anna M. Crosby, of Washington city, has been appointed secretary to the Ladies' Washington National Monument Society, vice Mrs. Lewis, declined.

The Lois Weedon System of Husbandry.

A few numbers back a review appeared in this journal of a work on the Tullian system of husbandry, as revived and illustrated in the practice of Rev. Samuel Smith, of Lois Weedon, Northamptonshire, despite the ridicule and abuse of those who, like the late Sir William Curtis, are "quite satisfied with things as they are." This gentleman has now given the system a trial of twelve consecutive years, during which, without a particle of manure, he has grown wheat, year after year, upon half the land, reaping an average produce of thirty-five bushels per acre. The method of Mr. Smith is well known to our readers; the land having been kept open by the spade to a subsoil depth, three rows of wheat are planted or drilled, at one foot distance between the rows, of course occupying three feet. The next three feet of land being left vacant, three more rows are planted on the other side of the void spaces, and so on throughout the whole field.—One great point in this husbandry is, keeping the intervening fallow well tilled with the spade, and clear of weeds, during the growth of the crops upon the planted parts, and using the horse-hoe freely between the rows of growing wheat. As soon as this is reaped, the vacant spaces are at once planted; and so on, year after year, without any change of crops, application of manure, or cessation in the course.

It is not a little remarkable, that after all the efforts that have been made, with the aid of modern science, capital, and skill, to raise the fertility of the earth to the highest pitch it is capable of; after all the money expended in the manufacture and purchase of manure, in order to draw from the soil the greatest possible amount of produce; after the publication of innumerable books to prove that if you put nothing into the land you cannot expect to obtain anything out of it, and that for every cereal crop of grain grown, it is necessary to compensate the soil for the loss of elementary matters by a fresh supply in the form of manure;—it is, we say, remarkable that we are called upon, in the very zenith of our agricultural glory, to retrace our steps and revert to the practice of a speculator, who, a century and a half ago started a principle upon which, if true, the restoration of the fertility of the soil is based. Namely, that the atmosphere alone contains an abundant and everlasting supply of all the elements of fertility necessary for the growth and sustenance of plants.

This perfect competency of the atmosphere to furnish a supply of food for plants must be accompanied with an attractive power in the soil itself to absorb and modify the substances, and thus reduce them to a form in which their assimilation by the plants is promoted. On no other principle can a result so contrary to all hitherto received opinions and practice of agriculturists be accounted for. Every modern writer on agriculture, whether scientific or purely practical, has maintained the necessity of a constant application of manure, in order to compensate the soil for the exhaustion of a cereal crop. It is for this purpose that herds of cattle and flocks of sheep are kept on our farms, it being almost universally asserted by farmers that they only repay the expense of their maintenance by the manure they

produce, by which the produce of cereal crops is increased. Without absolutely endorsing this assertion, we may safely assume, from all experience, that, on the present system of farming, it would be impossible to grow corn profitably without manure; and that a constant succession of cereal crops, without it, would exhaust the most fertile soil in the world. We must therefore conclude that the secret of the success of the Lois Weedon system, which is a copy of Tull's, lies in the constant stirring of the soil under fallow, in order to promote the absorption of the elements of fertility. And, moreover, the proportion of that success depends upon the degree and depth to which the soil is stirred and comminuted. A remarkable corroboration of this opinion has occurred during the present season on the land laid down with Halkett's guide-way cultivator, at Wandsworth. This land has been deeply subsoiled, and comminuted with the Norwegian harrow, and planted with potatoes, without manure. On each side of it the land was tilled in the common way, and also planted with potatoes. The latter produced one bushel per rod; but the former yielded 2½ bushels per rod, being an excess over the other of 240 bushels per acre. This amounts to 7½ tons, which, at £5 per ton, is £37 10s. A similar result is obtained by Mr. Smith's spade husbandry over that of the plough, as practiced by seven other experiments on the Tullian system. The average produce was 24 bushels, 3 pecks per acre, whilst Mr. Smith's was 35 bushels. Their highest produce, also, was 27½ bushels per acre, whilst Mr. Smith's was 40 bushels. It is further worthy of observation that this system is so far from impoverishing the soil, that it seems to improve it; and that the produce, after twelve consecutive years' trial, has increased rather than diminished, that of 1858 being 40 bushels per acre. This is a very remarkable feature in the system, as it demonstrates the fact that tillage alone, by stimulating the soil and promoting the absorption of elementary matters from the atmosphere, is sufficient to sustain its fertility.

It is evident that if the Lois Weedon or Tullian system is what it has been represented to be—and there is not the slightest reason to suppose that any deception or misrepresentation has been practiced—the expense of farming upon it must be much less, and the profit much greater, than on the common system. Accordingly, we find that whilst the profit upon a four-course rotation, according to Bayldon ("On Rents and Tillages") does not exceed £1 5s. 3d. per acre per annum, that of the Tullian system is £4 2s. 1d. per acre per annum; being in excess of the other £2 16s. 9d., or considerably more than double. This, too, is under plough culture; but Mr. Smith's spade culture is still more profitable: for whilst the average produce is 35 bushels per acre, which, at 7s. per bushel, (Mr. Smith's estimate,) is £12 5s., his expenses amount to only £6 0s. 4½d., leaving a balance of £6 4s. 7½d., per acre, without reckoning the straw, which as no manure is required, may be sold to increase still more the profit.

The question then remains to be solved—can this system, which is so profitable on a small scale, be made applicable on a large one, with an equally favourable result? We see no reason whatever to doubt the facts that are stated in the

works we have referred to, derived as they are from sources beyond the suspicion of deception, and corroborating each other. It is a pity that the subject is not taken up seriously by the Royal Agricultural Society or the Central Farmers' Club, and experiments on a large scale instituted, in order to bring the system at once to the test as the most useful and profitable to the farmer, and consequently to the public.

There is one other question involved in these experiments, we think, worthy of notice—namely, whether manures do not act more *indirectly* as stimulants and absorbents of the elementary matters in the atmosphere than *directly* as fertilizers *per se*? We know the affinity of many chemical substances, which causes them to unite when placed in juxtaposition. Thus common salt, if placed on a reeking dung-hill, or on any substance emitting ammoniacal matters, will be found to effervesce strongly. This is caused by the absorption of the ammonia; and it will continue until the salt is supersaturated, when it ceases, and the union thus formed is nothing less than the sal ammoniac of the chemist. This is a subject worthy of the attention of the scientific farmer, who will know how to turn it to his advantage, by applying the principle to his every day practice.—*London Farmers' Magazine*.

Agricultural Chemical Theories.

Every reading farmer is somewhat acquainted with the immense prospective results which were thought to have been attained by practical agriculture when Liebig's first work was published, and how the views he set forth were at once adopted as the basis of the theory on which a correct system of agriculture was to be carried out. The distinguished chemist of Giessen followed up his investigations, by an attempt to construct special manures which would supply plants with the food they were known by analysis to need for their growth, increase, and the ripening of those parts which were of the utmost value. Wheat needed certain ingredients to enable it to make a heavy growth of grain. The grasses required a large growth of leaf and culm, the roots wanted food that would supply, in a greater degree than the soil could do it, the elements that would aid to form their great masses of succulent substance, and the soil being analyzed and found wanting, was to be supplied with the due proportion that the crops intended to be grown needed to perfect them. Meanwhile the absorbing properties of the soil were charged with the duty of not only holding but of letting loose the phosphoric acid, the lime, the potash, the silica, &c., as the roots of the several crops might select them, according to the dictation of their necessities, for all that was needed was a good supply of the minerals which the chemists had found to exist in the ashes of plants which had been reduced by fire. This theory, however, was not found to work well in practice, for it was found that clover, which is one of the most exhausting of crops so far as the withdrawal of mineral substances from the soil is considered, and especially of matters entering into the composition of wheat, actually left the soil in better state for the growth of wheat, than it had been previous to the clover crop. Augustus Voelcker,

the distinguished chemist of the Agricultural Society of England, states this fact as follows:—

"The exhaustion of mineral substances by a crop of clover, not only effects one or the other mineral constituents found in the ashes of plants, but all the mineral matters entering into the composition of wheat. A crop of clover thus removes a large quantity of phosphoric acid, potash and lime, and with the exception of silica, of all other mineral matters that are required by a crop of wheat, and yet wheat succeeds remarkably well after a crop of clover." It thus being found that the mineral theory would not work, recourse was had to the powers of these substances to absorb volatile ammonia and give out nitrogen.

Professor Way, and Messrs. Lawes and Gilbert set on foot a series of experiments to test the truth of their theory, and they came to the conclusion that the fertility of the land was owing to the presence of the silicates of potash, soda and alumina which had the power of forming insoluble compounds with ammonia, which was thus stored up for the use of plants, and the ammonia was thus preserved from dissipation by the action of air, or of water. This however was disputed by Liebig, whose experiments at last led him to conclude that though the absorbing powers of the soil, on which really rests its great powers of fertility, were due in part to the chemical action of the silicates, and hydrates of alumina, yet that they were more dependent upon the physical condition of the soil.

A new investigator, in the *Annales de Chimie et de Physique*, named M. F. Brustlein, has, however, overthrown both of these theories, and brought the theory of the absorbing property of the soil for volatile ammonia, or rather for the volatile fertilizing substances of manure, into another and correct form. The experiments which he made to test the correctness of the views of Liebig and of Way, were made at the suggestion of the celebrated Boussingault. M. Brustlein found that vegetable mould and peat were quite inert towards ammonia, when existing in a solution as a salt, but that they had the power of absorbing free ammonia in the same manner as charcoal, and that the soil had this property, and that it might be promoted and increased by the treatment of land. He, therefore, infers "from his experiments that the ammonia absorbed by the soil is chiefly retained as such, being neither modified nor transformed into any other nitrogenous compound."

The last conclusion indicates more simply and reasonably than any theory yet put forth, where and in what lies the great secret of giving to plants depth of soil. The more depth, and the more loose the soil, the greater its surface power of attraction for the volatile ammonia in which consists so much of the value of manures. The whole subject of the theory of the action of the soil is very much simplified by these investigations of M. Brustlein, whilst at the same time the history of the various theories that have been twisted out of partial experiment by the most celebrated chemists, serves to show that chemistry is not agriculture any more than Physiology is the art of feeding live stock.—*Michigan Farmer*.

One farmer in Illinois sold 2,500 head of cattle last fall, yielding him \$75,000.

Highly Cultivated Non-Bearing Orchard.

EDS. RURAL NEW-YORKER:—An enterprising, excellent farmer—a worthy neighbor of mine—has an apple orchard of rare beauty, containing some 1600 trees, varying from 12 to 16 years of age, from their setting, and occupying about 40 acres of ground. The trees are handsome in shape, vigorous in growth, and of ample size for full bearing—the results of great care in their cultivation, annual pruning, washing, manuring, spading of the ground, &c. Yet the returns of fruit are scanty, many of the trees not having begun to bear at all; while my own orchard—planted about same time, in similar soil and locality, and embracing mostly the same varieties, but the trees far inferior in size and thriftiness, having been almost wholly neglected in their cultivation—has borne well for a number of years, and just yielded me a bountiful crop of fruit for market and home use.

The purpose of this communication is to seek the philosophy or explanation of the marked difference described between the two orchards, in respect to their bearing development. Is it the high cultivation in the one case, or the neglect in the other? And what is the proper remedy for the defaulting orchard? what is the requisite treatment to bring it into bearing in proportion to its apparent capacity? Will the editor of the *Rural New-Yorker*, or some contributor for his columns whose science and experience may qualify him for the purpose, have the goodness to favour the public, through the medium of that valuable publication, with the *rationale* on this subject? Doubtless many others are equally interested with my neighbour and myself, and will with us gratefully appreciate a compliance with this request.

WAYNE.

REMARKS.—Our correspondent, no doubt, has judged rightly of the cause of the difference in these two orchards. If we sow seed of the Aster, or any other late flowering annual in the spring, and as soon as ready to transplant put a part in very poor soil and a part in rich, damp soil, those in the poor soil will flower prematurely in July, or August, and die, those in the rich soil will make stronger plants and give finer flowers, but will not blossom until autumn, and the first frost of winter will be likely to find them in full vigor. All gardeners who wish to raise early tomatoes for market, set the plants in the poorest soil, where they will make but a small growth and ripen their fruit early. The same plants put in a rich soil would make a much larger growth, give double the quantity of fruit, but be much longer in coming to maturity. We have seen standard pear trees, three years old, crowded in nursery rows, and in a poor and badly worked soil, bearing fruit, while the same trees, if planted out in good soil and well cared for, would not have fruited until ten or twelve years old. Procure two dwarf pear trees, plant one in poor sandy soil, and give it no care or culture, and it will be very likely to give a few specimens of fruit for several years, without making wood, become "stunted" and die. Plant the other in a rich, strong soil, and it will make wood rapidly without giving much, if any fruit, for several years, but will make a well-formed, healthy tree, and in a few

years reward the patience and care of the cultivator.

In the early stages of their formation all buds are leaf buds. The transformation of some of these leaf buds to fruit buds, is accomplished in some varieties, as the plum and cherry, the second season, and in others, as the peach, the latter part of the first season. It is generally observed that the smallest and least developed leaf buds are those which are changed to fruit buds. The cause of this transformation is not, perhaps, satisfactorily settled, yet some facts in relation thereto are well known. A tree furnished with a rich humid soil, containing an abundance of watery nutriment, well cultivated and left unrestrained to pursue its natural habits, may attain the age of twelve or fifteen years, or even more, without forming fruit buds, whilst another tree of the same variety being placed in a poor or dry soil, less favorable to rapid growth, or by being constrained in its growth by training, or by grafting on some particular stock, or dwarfed by neglect, may produce fruit buds and fruit in three or four years, the time depending upon the amount of restraint to which the tree is subjected.

On this subject we find the following interesting remarks in Barry's Fruit Book—"An apple tree on a common stock, planted out in ordinary orchard soil, does not usually bear until it is in most cases seven years old from the bud, often more: whilst the same variety grafted or budded on a paradise apple stock, will produce in two or three at most. We frequently see one branch of a tree that has been accidentally placed in a more horizontal position than the other parts, or that has been tightly compressed with a bandage or something of that sort, bear fruit abundantly; whilst the erect, unconstrained portion of the tree gives no sign of fruitfulness whatever. As a general thing, we find that where there is an abundant and constant supply of sap or nutriment furnished to the roots of trees and conveyed by them thro' the unrestrained channels which the large cells and porous character of young wood afford, the whole forces of the tree will be spent in the production of new shoots; but that as trees grow old, the cells become smaller, and the tree being also more branched, the free course of the sap is obstructed, and becomes in consequence better elaborated, or in other words more *mature*, and commences the production of fruit. Circumstances similar in all respects to these, and answering exactly the same purpose, can be produced by art at an early age of the tree; and this is one of the leading points in the culture and management of garden trees, where smallness of size and early fruitfulness are so highly desirable.

We do not think that the neighbour of "Wayne" will have cause to regret that his trees were rather long in coming into bearing, as they must have become large, strong, and healthy. It is a poor policy to sacrifice the form and vigor of a tree to secure early fruitfulness. It might be well now, however to check growth a little. We once knew a young orchard in a somewhat similar condition. The ground had been kept well cultivated from the time the trees were planted. It was then "seeded down" with grass, and in two years the trees commenced bearing, and gave a crop every year for several years, while those in other orchards near only bore alternate years. They

had attained such vigor as to bear a good and increasing crop for five years that more than paid for the lack of a few small crops which might have been obtained a few years earlier. Orchardists make a great mistake in allowing their trees to bear when very young, or to overbear at any time.

Care of Old Apple Trees.

Many farmers who have old apple orchards are neglecting them, and in many cases cutting them down, to make room for young trees. This is poor policy, to say the least. Old trees, by the exercise of a little care and skill in managing them, may be made almost as productive as young ones, and in a much shorter time. All that is essentially requisite to ensure this result, is to trim them, carefully cutting away all the diseased and broken limbs, and to free the trunks and larger limbs of the "scurf" and moss, and afterwards to insert grafts—care at the same time being taken to lighten the soil, and make it rich, especially in the vicinity of the roots. In renewing an old orchard something like the following course may be advantageously pursued—the proprietor having first examined the trees, and decided whether they have sufficient vitality to renew their former energy under proper treatment.

In April or May, we should remove the rough bark from the body and large limbs of the trees with a scraper, an implement like those used by boat-builders in removing the rosin from the seams of boats and vessels, and afterwards scour the entire surface with a mixture of sharp sand and ashes, mixed with soap and water. Every limb should be treated in the same way, whether large or small, that can be come at conveniently, and care taken that all the moss and rough bark is removed.

The trimming should not be undertaken until about the middle of June, when all crooked and diseased wood should be removed with the sharpest tools, reserving only such shoots and small limbs as are of suitable size to graft. If the trees are old and very much decayed, the number retained for this purpose should be small, as there may possibly not be enough energy or vital power in the system to sustain a large number, and as too dense a top will necessarily tend to abridge the recuperative action by producing too much shade.

The soil should also be thoroughly loosened around the roots, and filled with strong and invigorating manure, and kept entirely free from weeds and grass. The best stimulus, probably, that can be applied, is a compost made of forest leaves, well decomposed, house ashes, lime, gypsum and common stable manure. From fifteen to twenty bushels of this should be allowed to every large tree, and so worked into and incorporated with the soil as to ensure its coming in close contact with the roots. If the soil be of a light arenaceous, or sandy texture, a load of fine clay should be spread over the surface, above the manure.

In removing the limbs, all the stumps should be coated with wax or tar softened with tallow, or what is equally cheap and more easily applied, gum shellac dissolved in alcohol. The reason why so many old trees perish after the abscission of the larger limbs, is, that no care is taken to

ensure the healing of the wounds, which let out the life-blood and energy of the system during the ascent of the sap, leaving long, black lines of decaying bark as a perpetual reproach to the unskillful or perverse manager.

The second year the trees may be grafted, and if the tops promise not to be thick enough, new branches may be permitted to start, to be engrafted subsequently, and in such places as will ensure a symmetrical and desirable form to the tops. The most eligible shape for an apple tree is that of an umbrella reversed; but this must be a matter of taste with most persons.

So far as working the soil and manuring is concerned, our method refers to trees standing by themselves; where they are regularly set in orchard form, the best way would be to plow the whole surface carefully and manure broadcast.

This course may seem too precise and expensive to some persons,—but if so, let them try the cleansing, pruning and manuring process on a single declining tree that they have long valued, and see what a wonderful restoration will be effected.—*N. England Farmer.*

Manuring.

We would not be understood as recommending the very common practice which prevails among farmers, of depositing and passing through their farm-yards all the straw, cornstalks, &c., for the purpose of decomposing and fermenting the whole mass. In colder climates, where fermentation is comparatively slow, this practice may be attended with benefit; but in this climate, and in the low tide water section of country, where our winters are short and mild, and the summers long and warm, we deem this practice unnecessary, probably injurious, and as being certainly wasteful. The difficulty in this climate appears to be, not to induce fermentation and decomposition, but to guard against its too rapid progress. The labor of hauling large accumulations of straw and cornstalks to the farm yard, and again hauling out the manure to the field, is an expensive and laborious process, and on farms chiefly devoted to the culture of wheat and tobacco, is, in our opinion, altogether unnecessary. Without entering into a theoretical view of the subject, we feel no hesitation in saying that experience, that best of all teachers, has proved beyond almost the possibility of a doubt, that in this climate, and for the crops indicated, the application of all vegetable manures in a fresh and undecomposed condition, as a top-dressing in the winter and spring months, on grasses and clover, is the most economical mode of applying such manure. This is a season of the year when the farmer can best devote his labor to this kind of work; and there is much less labor in hauling and applying manure on the grass and clover fields at this season, than on a soft and plowed surface in the spring, when farm operations of all kinds are demanding instant attention. This, every practical farmer will easily understand. The application of fresh and strong manure as a top-dressing has not only been attended with the most satisfactory results, but it has also, a tendency to render the soil beneath much more friable. We are well aware there are many intelligent practical farmers who are opposed to this mode of applying manures. We are also aware that some theorists are oppo-

sed to what they consider a wasteful mode of using manures; but we also know that numbers of the most intelligent, practical and successful farmers in lower Virginia, have of late years adopted the practice of top-dressing, and the results have been such as to justify its continuance and extension.

The general practice of farmers who adopt the top-dressing plan of manuring, is to make the application to land intended for a wheat crop the succeeding fall. Top-dressing, is, however, not less applicable and beneficial in its results, when made to land intended for corn the succeeding year, and is a decided improvement on the usual mode of applying the accumulated straw and corn-stalks from farm yards and cattle folds, to the plowed corn field. The rank and undecomposed condition of this manure is an impediment to the culture of the crop, on which it acts very slightly, if at all, as a fertilizer; and much of its benefits is also lost to the succeeding crop.—*Farmers Journal.*

Cultivation of Cotton.

Mr. Editor.—As Cotton is King, and many of the readers of the *Field and Fireside* are more or less engaged in the cultivation of cotton, I propose to make a few suggestions upon that branch of agriculture, which may interest inexperienced cotton planters.

The land should be broken fine and deep in the preparation; subsoil, if a fine clay subsoil; throw up high beds for the purpose of drying the land in early spring, which not only neutralizes the acid, but creates a warmth in the soil, so necessary to start the young plant. If planting upon high dry land, the buds should be plowed down at the time of planting, and, in the cultivation, the land should be kept as level between rows as possible, in order to keep up a free circulation of moisture during a dry season, to prevent the plant from shading its forms. If planted upon low flat lands, inclined to be wet, it should be planted upon beds as high as possible, and in the cultivation the middle or water furrow should be kept open to drain off the surplus water, so that the beds may have warmth and dryness, so essential to the cotton plant.

In a high latitude for cotton, it should be planted on beds as high as potato ridges, and kept so in the cultivation by keeping the water furrow well open, which not only frees it from all obnoxious acids, but increases the warmth of the land at least one degree, causing it to take an earlier start in spring. The land should be plowed as shallow as possible in the cultivation, after the plant commences fruiting, with light harrows or sweeps, with the wings set flat to the ground, seiving the dirt over the wings, instead of throwing it like a shovel plow or solid sweep, as deep culture at this stage of the plant severs the small roots or feeders, causing it to shed its first fruit, which ought to be secured. In all light, loose and sandy soils, cotton should be cultivated with very light harrows or sweeps, set very flat, stirring the land as shallow as possible, but frequently, as such lands are already too porous to produce a heavy crop of fruit.

The land should be stirred as soon as possible after every heavy shower, to prevent its forming a crust, opening the surface soil in order for a

free admittance of all the gases to feed the plants and enrich the soil.

These are general rules, but it will be necessary for the planter to vary these rules and use some discretion; as, for instance, in case of a long, wet spell upon very stiff clay soil, running the soil together, it would be necessary to give it a moderately deep plowing, although it would break many of the small roots of the cotton plant. To make cotton mature well before frost, it should be left very thick in the drill, especially in a short climate for cotton or bottom lands, as many plants together have a tendency to reduce the sap in the wood, causing an earlier maturity. By deepening and enriching the soil and surface culture, I have produced a stalk of cotton this year with 523 bolls, only four feet high. It is true, that it was a very highly improved variety; yet the ordinary mode of culture would not have produced so much fruit.

Every planter should read and study agricultural papers; it makes them think and act, and makes farming interesting.

I regret to see so many farmers opposed to book farming. It is agricultural science that enables the cotton planter, to raise cotton successfully where it was once thought it would not mature, and to make the stiffest clay soil, soft and friable.

Yours, truly,
DAVID DICKSON,
In Southern Field and Fireside.

[For the American Farmer.]

Time of Cutting Timber.

I see a communication in my December number from the *Scientific American*, for the best time of felling timber for fencing. He says, timber cut in late autumn, and split or sawed before spring, will not powder post. Now sir, I think, he like many others, is very ignorant upon that subject. I have had much experience in the cutting of timber of all kinds, growing in the Northern and Middle States. The writer says, fence posts, and rails particularly, no matter what kind the timber may be. Now, sir, I can assure all men that hickory felled three days before the change of the moon, the worms will cut it almost up. Cut a hickory in the spring, three days before the change of the moon, and stand it up against a white pine, and worms will eat up the hickory and kill the pine before one year; and a hickory cut in the third and fourth day of the new moon, no worm will ever attack it. Those who disbelieve it, try it. SUBSCRIBER.

Martinsburg, Berkeley Co. Va., Dec. 27, '59.

A Christian is a warrior by profession, and has, through life, a succession of enemies to encounter. Lust attacks him in the days of his youth, ambition disquiets his riper years, and avarice infests his old age. His condition reminds one of that observation of Plutarch concerning the Romans of the first ages, that "if ever God designed that men should spend their lives in war, they were the men. In their infancy they had the Carthaginians to contend with for Sicily; in their middle age the Gauls for Italy itself; and in their old age they were obliged again to contend with the Carthaginians and Hannibal."

The Horse.

To improper treatment in the stable, respecting cleanliness and comfort and also the manner of feeding, may be traced about half of the diseases that the horse is heir to. It would seem that after becoming the faithful servant of man, his condition should be bettered and the number of his diseases lessened; but instead of this, we find his servitude entails upon him a long list of diseases unknown to the wild races. Much has been said and written about regularity in feeding, but we would reiterate it again, giving "line upon line, and precept upon precept." Feed at stated hours. Let the work be so arranged as to accomplish this. In most cases it may be done as well as not. In feeding do not give more than your horses will eat up clean, as it may cloy them and cause loss of appetite; for if you are feeding mixed feed with chop (in warm weather) it will sour and is generally wasted. Hay, however, should be kept in their racks at all times. There is no danger of eating too much of it. One main desideratum towards keeping horses in good thriving condition, is to keep up the appetite so that they will eat plenty of roughness. The food given to horses in the countries of Europe differs materially from the general course of treatment which they receive in our own country. In England and France, beans, peas and barley, as well as carrots and other roots, constitute important articles of diet. In this country, and especially in the West, such feeding is scarcely known. In many large districts of the West, corn and fodder, either put up in shocks or else the blades stripped and tied in bundles, constitute the whole course given throughout the winter.

This is essentially wrong; and as conclusive proof I would say that where such feeding is practiced I have invariably remarked an unusually large number of diseased horses. An occasional change of food is just as beneficial to the horse as his master, promoting appetite and health. When horses are working, they should have crop feed consisting of sheaf oats cut up and mixed with rye meal, wheat bran, shorts or corn meal. Wet the feed sufficiently to moisten the whole and stir well together. If using rye meal or shorts, wet the oats and stir before putting in the addition, then stir again. In this way the meal becomes thoroughly mixed where otherwise the water would cause it to stick in lumps with perhaps dry meal in the centre. A few ears of corn given after the chop, or some shelled oats mixed with it, will make a feed sufficiently nutritious for any occasion.

The cutting-box I use is Sanford's patent. I consider it the best and cheapest good straw-cutter in use. It is also an excellent article for cutting sausage meat, and consequently during the hog killing season it may be made to answer a double purpose. No one can be too particular in curing hay, oats, &c., for feed. Anything of the kind fed in a damaged condition is very injurious. *Smutty grain* will sometimes cause mares in foal to lose their colts. Clover hay, when properly cured, makes excellent feed for horses standing idle. Timothy is better and more strengthening for animals in constant service.

Horses are much benefited in health and condition by running to grass occasionally. Indeed there is nothing much better for an animal that

has been abused than rest and pasture. One reason, perhaps, why farm horses are less liable to disease than those kept about towns is the fact that the former are generally allowed pasture a good portion of the year, whilst the others are kept almost exclusively upon dry feed. When preparing a horse for a hard day's work, a journey, or any other fatigue, it is well to give better feed (richer) and more of it for a few days beforehand, than the ordinary course. Some persons foolishly give a heavy feed just before starting, which, instead of having the desired effect, produces just the opposite result. Instead of strengthening, stimulating and nerving the animal for extra exertion, as a few days of extra attention will do, he becomes sluggish and feverish on account of his overloaded stomach, and the effect is to destroy his spirit and vital energy.—*Southern Homestead.*

Mule Breeding in Kentucky.

The state of Kentucky has been celebrated for forty years as the mule growing centre of America. She has bred and fed them in sufficient numbers to supply the cotton and sugar grower of the South, the iron manufacturer of Pennsylvania, and the tow paths of our Northern canals. Up to the year 1835, the mule was bred with an eye solely to his size and efficiency for heavy drudgery and short fare. He was looked upon in the North as a degraded menial, only fit for the meanest of employments. In the South he was viewed as a kind of necessary substitute for the nobler horse, and always consigned to the care of the plantation negro. His breeding was from the diminished but hardy donkey, common to most parts of Europe, introduced into Kentucky from the New England States and Virginia. The mares employed were the lame, the blind and superannuated, that were considered unfit to breed colts, and a mule was a mule with a stereotyped value: twenty dollars at four months old was the universal price, and forty-five dollars at two and one-half years, when he was driven to the cotton grower. The man is yet living that sold the first Kentucky mules in the city of New Orleans. About the year 1835 the first effort to improve him was made by the Hon. Henry Clay, by the introduction of the Catalonian Jack from old Spain. Spain had been in possession for centuries of a race of jacks distinct from the common donkey, introduced into that country by the Moors, and supposed to be of Arabian origin. He is entirely different from the common ass or donkey in every respect; of uniform black color; high trotting form; long neck; fine head and muzzle; fine thin skin, and fine hair; round chest; high, commanding carriage; and the spirit and bearing of the finest blood horse. He is very uniform in size, varying from 14 to 15 hands high. The earlier importers introduced the jack only—an error that the latter ones have corrected; the first jennets of the true blood being introduced into Mason and Fleming counties in 1853. The result of the introduction of this improved race of asses has had a corresponding effect upon the growth of the mule. Instead of the ill-shapen, unsightly, repulsive brute once grown, we have the blood-like, high spirited, graceful, fleet, fancy animal fit for any service; for single and double harness in our buggies and

carriages upon the road, they are unequalled. They are safer in harness than horses, and as fast as the average (if not faster) of horses. They are very rich in color, being mostly of a dark shade of a bay. Their production at present is confined mostly to a few of the extreme northern counties of the state, as the pure blooded jack has not been generally introduced. Many very extensive mule growers and dealers in Central and Southern Kentucky have never seen one. Here their use has completely revolutionized the trade, our feeders selecting the Spanish mule to the rejection of all others; and the day is at hand when they will be generally introduced into our cities for the buggy. Their great longevity and freedom from disease will lead to their use on the road generally.—ANTHONY KILLGORE, *Fernleaf, Mason Co., Ky., June 13.*

Winter Protection of Grape Vines.

MESSENGERS. EDITORS:—In No. 511 of the *RURAL* is a timely and valuable hint over the signature of S. N. HOLMES, of Syracuse, viz: *A Cheap Insurance for Grape Vines.* For some time I have intended to send you my experience for 12 or 14 years on that subject. When my large vines first began to bear I practiced covering them with dirt through the winter, and they never failed to give a crop of fruit with that treatment. For eight or ten years they have remained on the frame on account of their large size. Three winters in that time has the crop of fruit been injured by the severe cold. The winter of '52 or '53 I got only two-thirds or three-fourths of a crop of grapes; the winter of '55 and '56, when the thermometer was 32° below zero, every fruit bud was destroyed excepting a few branches that got off the frame and were covered with snow, showing clearly that even a covering of snow was a sufficient protection to the fruit buds with that degree of cold, as I got on them large and well filled clusters. The sudden change from warm to cold of last winter; that destroyed about every peach bud in this section, injured the grape crop more than the June freeze did. The freeze injured my crop of fruit scarcely any, yet I got only about one-third of a crop of grapes. I estimate the loss of fruit in ten years by the severe cold of three winters, to be at least 1,000 pounds of grapes. Now what would have been the expense to take these two vines down for ten years, cover them with dirt and put them back again in the spring? I estimate that ten dollars would be ample to meet the expense for ten years, and if 1,000 pounds of grapes can be saved by that outlay, is it not a valuable one?

There was an inquiry last summer from one of your readers how to manage his vines on the south side of a building. He said they were destroyed in the winter. I had a large vine destroyed back close to the ground in the same position; the changes from heat to cold are frequent and sudden, just as it was last winter. One day at near evening it was thawing, the second morning after at sunrise the thermometer was 13° below zero. That was the time the peach and grape crops of Western New York suffered so much. The grape vine proved itself the most hardy. Take such vines down and cover them is the cheap insurance.

ALVIN WILCOX.

The Mocking Bird.

This wonderful creation of the feathered tribe, whose native home in the south is made joyous by its ever varying voice, has recently been suppositiously decried in the "*Atlantic Monthly*." A clever article entitled "*Night Birds*," which appeared in that magazine, alludes to their miraculous concentration of sweet sounds, in very cautious terms of praise, and then presumes, without personal experience on which to found an opinion, that the mocking-bird, as a musician, is inferior to the English nightingale. This admission we take to be treason to one of our "*American Institutions*." The nightingale deserves all that has been said and sung of it; it is classic from the allusions made to it by the best British poets, and herein lies really its immense popularity; for without such endorsement, it never could have had its wide-spread popularity in this country. But the mocking-bird is its superior. The charge that it is a mere "mimic" is false. To be sure the mocking-bird plays Old Nick with his fellow wood-companions; he deranges all their harmonies, is in fact a very Puck of mischief, and seems to delight in annoying his fellow warblers, and in confusing their best laid plans; but there are times when the mocking-bird tires of his own imitative exuberance, and sits down with a soul filled with himself, to pour out upon creation his songs of heavenly praise. On these occasions, the best efforts of the English nightingale sink into mere prettiness; they are the sonnets of Shenstone, while the mocking-bird is a pastoral Collins, and at the same time as sublime as Homer. We have seen the bird in the quiet mid-night of a southern sky, when the moon was declining in its full tide of splendor, select some dead limb near the house, and after going through many eccentric motions, as if preparing for its grateful task, it would turn its little head towards heaven, as if for inspiration and commence pouring out its song of adoration and praise. The levity and absolute rascality of its daylight revels are gone; it was now seemingly an *inspired voice*, and for hours it would make the surrounding groves echo with its wonderful compositions. Sometimes commencing with an original composition in which all the feathered songsters were represented, yet surpassed, it dwelt upon their inferior strains until they formed a back ground for its expression, then would pour forth such an overflow of notes that the listener, in spite of himself, is lead to believe that some immortal and blessed spirit is struggling in the effort to make communication with the world. You listen—you are charmed—next, you are absorbed, and then in the astonishment and admiration, you become *superstitious* and absolutely alarmed—you think that the bird is a delusion; that the strains you hear are from the *invisible world*—that they are *prophecies—hints—oracles—warning—messages from the land of dreams*. Such is the effect of the music of the mocking-bird in its wild home, on the most unpoetical mind—it absorbs, astonishes—and fills with dreamy fear. The English nightingale at best merely fills one with admiration—its morning salute is as happy in its time of expression, as its harmony is beautiful and enchanting, but nothing more. The mocking-bird equals all this, and then ascends to a higher sphere—reaching the moral sublime.—*Spirit of the Times.*

